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THE INTERNATIONAL JOURNAL OF AMERICAN LINGUISTICS was founded in 1917 by Franz Boas and designed for the publication of data referring to American Indian languages. After forty years of exclusive devotion to those languages, the scope of the Journal is somewhat enlarged: to include papers on languages outside the Americas where such papers illustrate points of theory, method, and technique which have some bearing on American Indian linguistic research. The Editor will invite such contributions and will welcome correspondence from contributors who wish to publish their work in IJAL.

Primary emphasis will, however, continue to be given to data-oriented papers on American Indian languages which may be submitted, without prior correspondence, to the Editor—C. F. Voegelin, Indiana University, Bloomington, Indiana. Books and papers for review, as well as reviews themselves, should be sent to the Review Editor—Harry Hoijer, University of California, Los Angeles 24, California.

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CENTRAL ALGONQUIAN VOCABULARY: STEMS IN /k-/

CHARLES F. HOCKETT

CORNELL UNIVERSITY

1. Introduction
2. Symbols and Abbreviations
3. Sources
4. Statistics
5. Notes
6. List

1. This paper presents all the Proto Central Algonquian forms the writer has been able to reconstruct from the available evidence on the daughter languages, with the following two restrictions:

(1) Only stems beginning with roots have been considered. Thus dependent noun stems e. g. Fox -kwis- *son*, as in nekwisa *my son*), which contain no root and cannot begin a word, are excluded. So are certain secondary stems in which the first element is the third person prefix (e. g. Fox ohcikwanapiwa *he kneels*, derivative from ohcikwani *his knee*). Stems beginning with initial change or with reduplication, regular or irregular, are included, since both these phenomena can perhaps best be regarded as deriving roots from other roots.

(2) Only stems beginning with /k-/ have been considered. The practical value of these two limitations is that they render it possible to work with manageable segments of the alphabetized vocabularies of the daughter languages. There can be no serious theoretical objection, since PCA *k- is the only source of /k-/ in any of the daughter languages here dealt with,[1] and PCA *k- yields no other reflex in any of them. Thus the only *k-initial stems that might be missed would be the very few (if any) in which one or another of the daughter languages has developed a prothetic vowel.

This paper may be regarded as the first installment of a Central Algonquian comparative dictionary, though unfortunately with no guarantee that the writer will be able to complete the task. Such a dictionary is imperative if eventually we are to push the Algonquian historical perspective deeper by bringing the East Coast and Plains languages into the picture. The present paper may also be regarded as a token demonstration of the degrees of affinity of the Central Algonquian languages, and to this end the discussion includes certain statistical inferences.

2. The phonemic symbols used herein for the various languages, and the phonemic and conventional symbols for PCA reconstructions, are those used by Bloomfield (in the first source cited in section 3) with the following exceptions:

The wedge is left off 'c' for the affricate.

Long vowels are written by single vowel letter followed by raised dot instead of by doubled vowel letters.

In sO forms 'e' and 'u' represent the ultra-

[1] In the northeastern dialects of C (called Montagnais, Naskapi) it seems that PCA *k has been fronted and affricated in some environments—presumably before front vowels and semivowels—to yield something like [ǰ]. Whether this has come to stand in contrast with the unfronted /k/, and whether it is identical with or different from the inherited affricate from PCA *c, are problems to which the writer does not know the answer. In any case, these dialects of C are not involved in the present comparative study.

short unrounded and rounded vowels; in other O forms these symbols do not appear.

For P, raised dot marks fortisness of preceding obstruent or obstruent cluster.

Bloomfield's clusters*θk and *xk are both written here as *θk. The distinction cannot be ascribed to Proto Central Algonquian, as it rests on differences of reflexes in East Coast languages.

A distinction between *θp and *xp is introduced on the basis of different reflexes in F; see item 69 in section **6.**

The notation *H plus consonant (and in one case *HS) is used in cases where the PCA cluster is indeterminate because of lack of key cognates.

Abbreviations:

AI	animate intransitive (verb)
AN	animate (noun, when not obvious from meaning)
C	Cree
C(E), C(N)	Cree forms marked by Bloomfield as eastern or northern rather than Plains
F	Fox
II	inanimate intransitive (verb)
loc.	locative
M	Menomini
O	Ojibwa
P	Potawatomi
part.	particle
PCA	Proto Central Algonquian
pl.	plural
pren.	prenoun particle
prev.	preverb particle
redupl.	reduplicated
Sh	Shawnee
sO	Ojibwa reported in Bloomfield's Eastern Ojibwa (a southeastern variety of the language)
TA	transitive animate (verb)
TI	transitive inanimate (verb)

References of the form 'Bl.' plus a number are to the numbered reconstructions in Bloomfield's Algonquian Sketch (see below). References by page to the same work specify 'page' before the number.

3. The outlines of comparative Central Algonquian phonology and grammar are set forth in Leonard Bloomfield, Algonquian, in Harry Hoijer and others, Linguistic Structures of Native America, Viking Fund Publications in Anthropology 6 (1946), pp. 85–129. Here we regard Bloomfield's comparisons and reconstructions as validated only for the Central subfamily, and accordingly refer to Proto Central Algonquian rather than to Proto Algonquian.

For F: Bloomfield's unpublished lexicon, drawn by him from the published reports of Jones and Michelson.

For C: Bloomfield's unpublished lexicon, drawn by him partly from syllabary and missionary sources but largely from his own work with the language.

For M: Bloomfield's unpublished lexicon, drawn entirely from his own work with the language.

For O: (1) Bloomfield's unpublished lexicon, drawn from the published reports of Jones; (2) the lexicon in Bloomfield's Eastern Ojibwa, to be published shortly.

For P: the present writer's unpublished materials.

For Sh: C. F. Voegelin, Shawnee Stems and the Jacob P. Dunn Miami Dictionary, Part III, Stems in *k-* and *š-* and *θ-*, Indiana Historical Society Prehistory Research Series 1:8 (1939).

One form from Miami is cited from the source listed just above.

4. Setting aside cases in which there is real doubt, the list of reconstructions in this article includes 404 reconstructed PCA stems. These are based sometimes on cognates in all six of the languages considered, sometimes on only five, sometimes fewer. (There are more than 404 reconstructions in all, but in addition to the doubtful ones already set aside there are some which are less than a stem.) For somewhat extraneous reasons, the number of Sh forms it has been possible to cite in support of reconstructions

has been relatively small, and no reconstruction has been made solely on the basis of a correspondence between Sh and one of the other languages. Considering only the other five daughter languages, the numbers of reconstructed stems based on five-way, four-way, three-way, and two-way correspondences are as follows:

Five-way correspondences:

F	C	M	O	P	14

Four-way correspondences:

F	C	M	O		18
F	C	M		P	5
F	C		O	P	8
F		M	O	P	7
	C	M	O	P	16

Total four-way: 54

Three-way correspondences:

F	C	M			12
F	C		O		12
F		M	O		10
	C	M	O		39
F	C			P	1
	C	M		P	1
F			O	P	10
	C		O	P	6
		M	O	P	7

Total three-way: 98

Two-way correspondences:

F	C				22
F		M			22
F			O		20
F				P	3
	C	M			23
	C		O		46
	C			P	0
		M	O		93
		M		P	1
			O	P	8

Total two-way: 238.

From the above figures it is easy to compute how many cognate stems are shared by each pair of languages:

FC 92	FM 88	FO 99	FP 48
	CM 128	CO 159	CP 51
		MO 204	MP 51
			OP 76

The figures first cited bear on the degree of validation of the actual reconstructions. The figures for pairwise shared cognates bear rather on the degree of pairwise affinity (or, inversely, degree of separation) of the languages. However, no direct deduction on this score could be made from the figures, since it must be remembered that the available lexicons on the languages do not necessarily include all the root-stems in /k-/ actually extant in the languages. Adjustment has to be made for the stems actually in use but not covered by our reports.

The M lexicon contains 1413 stems in /k-/, the combined O lexicons approximately 1200, the C sources 950, the F 675, and the P 267. We have no reason to assume that even the very large M lexicon is complete; but it is the most nearly complete one available, and we shall therefore take the number of items in it (1413) as a base line. We shall assume—there is no reason to assume otherwise—that the other languages actually use as many stems in /k-/ as does M, and that cognates would turn up in the same percentages if we had access to the rest of the stems in /k-/ for each language that they have actually turned up in with the materials available.

If in comparing 1413 M stems with 675 F stems, 88 cognates have turned up, our assumption implies that, in comparing the same M stock with a 'complete' stock of 1413 F stems, the same percentage of the F items would find cognates in M: the number of cognates thus implied is 184, which implies that 13% of the /k-/ vocabulary of F, and of M, would be shared by the two languages.

Adjustments can be made in the same way between M and C, M and O, and M and P.

The adjustments for the other pairs (those in which M does not participate) are more complex. In comparing 675 F stems with 950 C stems, 92 cognates have appeared. As a first step, assume that we had 'complete' C materials (1413 stems in /k-/) to compare

with the actually available F materials. This would imply that 20% of the F stems would find cognates within the complete C list, or 135. As the second step, we assume that we now have access to 'complete' F materials also (1413 stems in k-). Since (by step one) comparison of complete C materials with only 675 F stems has yielded 20%, or 135, cognates, comparison of complete C materials with complete F materials should still yield 20% cognates, or 285.

Carrying through these computations for each pair, we obtain the following picture. The first figure for each pair is the number of cognates probably shared by the pair, by the line of reasoning described above. The second figure is the percentage of cognation for the pair; the third figure is the percentage of NON-cognation—the percentage of the vocabulary of each which does NOT have cognates in the other. Obviously, none of the figures can be regarded as very accurate:

FC 285	FM 184	FO 245	FP 528
20%	13%	17%	37.4%
80%	87%	83%	62.6%
	CM 190	CO 259	CP 356
	13.5%	18.6%	25.2%
	86.5%	71.4%	74.8%
		MO 240	MP 268
		17%	18.9%
		83%	71.1%
			OP 470
			33.2%
			66.8%

It appears, if the data and reasoning are correct, that the most closely allied pair is F and P, with O and P trailing only slightly behind. This result was a surprise to the writer, who had had the suspicion that P was probably more closely allied to O than to any of the other Central languages; it may well be that the figures are sufficiently indeterminate for this suspicion still to be correct. The most distantly related pair is F and M, though C and M are probably just as distant; it is fairly clear that the affinity of F and C is greater than that of either with M.

By averaging the percentages of vocabulary not shared by each language with each of the others (the second percentage figure given in the table for each pair), we can obtain some sort of a measure of the degree of isolation of each language. M seems to be most isolated (or 'independent' or the like): 81.9% average NON-cognation of stems in /k-/ with each of the other languages. F and C come next, with 78.2. O comes next: 77.13; P is least isolated, with 68.8. That is, P seems to be, vocabularywise, more of a 'common denominator' or average of the group than is any of the others.

There is no reason to assume that PCA was either richer or poorer in vocabulary than any of its daughter languages. Since Bloomfield's M lexicon, our most nearly exhaustive source, lists approximately 11,000 stems, we can assume that an equally complete lexicon of PCA would list about the same number. The 1413 M stems in /k-/ represent 12.8% of the total reported M stems. In working with this 12.8%, we have been able to reconstruct (with just the limited lexical information at hand for the other languages) 404 PCA stems. With the same limitations on information, we thus should be able to reconstruct a total of about 3150 PCA stems.

Of the 404 reconstructed stems, F and M show reflexes of 88. By our earlier line of reasoning, if all the lexical information were as complete as that on M, we should be able to reconstruct 184 PCA stems in *k- which survive in both F and M. This should bear the same ratio to the total number of reconstructable PCA stems in *k- (given complete lexical information) that 88 does to 404. Thus with complete information we should be able to reconstruct 845 PCA stems in *k-. And by the step taken in the preceding paragraph, this would imply that the total PCA vocabulary that has survived in at least two of the daughter languages was 6575 stems, almost 60% of the es-

timated total PCA vocabulary, and a little over twice the number that should be reconstructable within existing limitations of information.[2]

It goes without saying that all the above inferences must be viewed with extreme caution.

5. Nouns are cited in singular form; animate nouns in proximate. Verbs are cited insofar as possible in the independent indicative form for third person singular subject and, if transitive, third person singular object (obviative in the case of transitive animate verbs). But for O and P we cite instead the corresponding form of the conjunct indicative.

A stem in a daughter language is allowed to support a reconstruction with which it disagrees in shape if (1) the former is an obvious secondary derivative from the latter, made by a process alive in the particular daughter language, or if (2) the difference in shape can be accounted for in terms of a known and common tendency to reshape stems of certain types in the particular daughter language. Thus pseudo-transitive AI verbs ending in F in -to·wa or -hto·wa, and in O in -to· or tto· (in P in -to, -t·o) are cited without comment in support of reconstructions ending with *-ta·wa or *-hta·wa.

Certain sets of forms in the daughter languages are obviously cognate, and yet allow no reconstruction. This is mainly the case for certain bird names, which seem to have been reshaped variously by sound imitation (of the bird's call). In a few instances the forms agree and a reconstruction has been ventured, but these reconstructions must be regarded with special suspicion.

Certain sets of forms in the daughter languages agree, either perfectly or in large part, in shape, but have exclusively or largely post-Columbian meanings. If it is possible to see an aboriginal meaning—perhaps surviving in some of the languages—from which the current post-Columbian meaning might have grown, we venture the reconstruction anyway. Decisions have doubtless been inconsistent, and all such cases should be viewed with reservations.

In some cases there are disagreements as to vowel length in what otherwise seem to be cognates, most often at a point of contact of successive morphemes within the word. We assume here that the forms actually are cognate, at least in many of the cases, and that the apparent discrepancies are due to regular patterns (of sound-change or of morphophonemic alternations at some stage in the histories of the languages) which have not yet been discovered and described. Fuller exploration of this problem must await the gathering of more comparative materials, since stems in /k-/ do not afford enough examples; doubtless some of the reconstructions made in the face of vowel-length discrepancy are wrong.

6. The reconstructions and the evidence on which they are based are given below in 126 numbered groups. In general, a numbered group includes all material built on a single PCA root. Cases where the root is not clear, or where reconstruction cannot be undertaken, are inserted in approximately the proper alphabetical place as separate groups.

1. *ka *you don't say!* (accepting information): C, M kah.

2. *kah-: F kaho *accordingly*; C kah (preverb) second person future, obligation or propriety; M kah (preparticle, quotative) *then, in due time, goes the story, it happened* . . .; O ka (preverb) future.

3. *kaHk- (H = *h or *θ) *sharp*: in M kahka·pɛhkat II *it is a sharply cut-off rock* and O kakka·pikka· *steep cliff*, both of which point to *kaHka·peθk- with various finals; perhaps in F (redupl.) kahkahkya·wi II *it is rough*. Cf. also, perhaps, despite the

[2] Note that the above discussion bears no very direct relation to the techniques of glottochronology, since we are considering an arbitrary sample of the total vocabulary, not the highly non-arbitrary "basic" vocabulary used in glottochronology.

quantities, F ka·hkami *directly, from the very beginning* and M kahka·m (redupl. ka·kahkam) *straight across.*

4. *kaHk- (H = *h or *θ) *hide.* *kaHkiθe·wa TA *he hides him*: F kahkine·wa; O kakkina·t; P kkənat (so recorded: lenis kk-). *kaHkisowa AI *he hides, is hidden*: O kakkiso; P kkəso (so recorded); F kahkiso·wa may be misrecording for expected kahkisowa. Either F kahkisotawe·wa TA *he hides from him* or O kakkiso·ttawa·t (same) probably has an error of recording, but we cannot tell whether to reconstruct *kaHkisotawe·wa or *kaHkisohtawe·wa. In the case of F kahkihto·wa, O kakkito·t, P kkətot (so recorded), all AI pseudo-transitive *he hides it,* there may likewise be a recording error: *kaHkihta·wa is structurally more likely that *kaHkita·wa. The P recordings with lenis kk- are probably wrong, but since the PCA consonantism is not clear they may be right.

5. *kahkilaw- (or *kahkelaw-) *all*: C kahkiyaw; O kakkina.

6. *kakaye·lesiwa AI *he is deceitful, crafty*: C kakaye·yisiw; M kaka·yɛ·nesew.

7. *kaka·nw- *severally long* (cf. *kenw-). *kaka·noka·te·wa AI *he has long legs*: O kaka·noka·te·; P kkankate. *kaka·nosiwaki AI *they are long*: F kaka·nosiwaki; O (reshaped) kaka·no·siwak. *kaka·nwa·θkosiwak AI *they are long sticks*: M kaka·nuahkosewak; O kaka·nwa·kkosiwak. The medials do not agree in the cases of M kaka·nuakɛhkow, O kaka·nwa·nikkwe· AI *he has long hair* and M kaka·nuapi·kɛhtew, O kaka·nwa·pi·kittawake· AI *he has long ears.*

8. *kakwa·l- (?) *frightful, terrible* (cf., possibly, *koq-). *kakwa·leqθake·lentamwa TI *he thinks it frightful*: M kakuanɛqnakɛ·nehtam; O (formal object) kakwa·nissake·ntam *he thinks things are terrible.* The root-final *-l is based on the assumption that such C forms as kakwa·hyaki (prev.) *with startled surprise,* kakwa·hyakihe·w TA *he does something frightful to him* have -hy- for -y- as a recent analogical back-formation or through error of recording (inherited -hy- in C generally loses the -h-).

9. *kakwe·t- *try* (cf. *kot-). *kakwe·ci (part.): F kokwe·ci *trying* (also prev.); C kakwe·ci *try* (prev.); M kaki·c *for only one's own sake;* sO kekwe· *try* (prev.). *kakwe·cihtamwa TI: C kakwe·cihtam *he asks it a question;* O kakwe·citto·t *he tries it.* *kakwe·cime·wa TA *he asks him*: F kokwe·cime·wa; C kakwe·cime·w; sO kekwe·cema·t.

10. *kakye·p- *closed* (of senses, mental faculties) (cf. *kep-). *kakye·pa·ci *stupidly, foolishly, badly* (part. and prev.): C kake·pa·ci (prev.); sO keki·pa·c (part.), keki·pa·ci (prev.). *kakye·pa·tesiwa AI: C kake·pa·tisiw *he is foolish, stubborn;* sO keki·pa·tesi *he is bad, ill-behaved;* P kkyepatsə *he is bad.* *kakye·pehte·wa AI *he is deaf*: C kake·pihte·w; M kaki·pɛhtɛw; cf. Sh kake·peqše. We cannot reconstruct the whole stem for *he is blind* AI: M kaki·pehkow; O kaki·pi·nkwe·.

11. *kakye·θk- *know* (cf. keθk-). *kakye·θkime·wa AI *he exhorts, preaches, lectures to him*: F kekye·hkime·wa *he repeatedly informs him;* C kake·skime·w; M kaki·hkemɛw; sO keki·kkema·t. The M form may be a convergence of two etymologies: that given, and a formation on redupl. *kakwe·θk- from *kwe·θk- *turn around,* with the meaning *he changes him by speech.*

12. *kama·t- (?). M kama·ci (part.) *contrarily, perversely, just at the wrong time.* C and O agree on a meaning, but not on stem shape: C kama·ciwaham TI (formal object) and kama·ciwisimo·w AI *he dances the scalp-dance, the joy-dance;* O kama·ci AI *he performs the peace-dance after war.*

13. *kan-. Probably two or more roots are involved in the following. Note that F has first-syllable e for *a, as though the next syllable contained postconsonantal y. *kana·ci (part.): F kena·ci *slowly*; C kana·ci (pren.) *clean, pure.* The former meaning recurs in *kana·ciqya·wa AI: M kana·ceqtaw *he holds still;* reshaped as pseudo-transitive in F kena·cihto·wa *he makes it slow.* The

second meaning recurs(?) in sO verbs kena·cuwi AI, kena·cuwan II *he, it is beautiful, handsome.* *kaneqsitam- (part.): M kaneqsetam *troublesome, in an evil way;* O kanissitam *with sorrow, sorry to; in a good way* (but negated). This last can relate if it is normally confined to negated usage.

14. *kanapaci *maybe, perhaps*: M kanapac (static); sO kenapac *perhaps, probably*; P knəpəc. (Possibly cf. *kaθ-, negative.)

15. *kanaw- *care, attention.* *kanawa·pame·wa TA *he looks upon him, observes, watches him*: C(E) kanawa·pame·w; O kanawa·pama·t. *kanawe·leme·wa TA *he takes care of him, keeps him in mind*: C kanawe·yime·w; M kana·weneme·w; O kanawe·nima·t. *kanawe·lentamwa TI *he takes care of it, keeps it in mind*: C kanawe·yihtam; M kana·wenehtam; O kanawe·ntank. *kanawe·lentamawe·wa TA (double-object) *he keeps, takes care of, it for him*: C kanawe·yihtamawe·w; O kanawe·ntamawa·t. *kanawe·lencika·sowa AI *he is kept, tended, cared for*: C kanawe·yihcika·so·w; O kanawe·ncika·so; cf. M kana·wehceka·sow, which, with the O form, could trace to a PCA **kanawe·ncika·sowa, except that this reconstruction does not fit the known morphological patterns of PCA.

16. *kanwew-, *kanwiw-, *kanyew-, or *kanyiw-: M kaniw *soon later; wait a minute; just a moment ago;* C kani *of course, come to think!*

17. *kap- *out of a liquid.* *kape·wa AI *he disembarks* (*nekapa *I disembark*): C (analogic) kapa·w (nikapa·n); M kape·w (neka·pa·m); O (analogic) kapa· (sO nenkapa·); cf. Sh kape·wa *he wades across.* An extension *kapat- appears in C kapate·skwe·w *he takes food from kettle* (and other C verbs), M kapa·tahkɛw *he dishes out food.*

Apparently unrelated to the preceding is *kapeθkamwa TI *he passes it, goes past it, misses it by coming late*: C kapiskam; M kape·hkam; cf sO kepikka·tank *he passes it.*

18. *kape·- *for the duration of.* *kape·- (pren.) *for the full duration of, for all the length of*: C kape·, sO kepe·; P kpe. *kape·-Hšiwa (H = *h or *q) AI *he camps overnight*: C kape·siw; O kape·šši.

19. *kašk- *closed up, blocked.* *kaškatenwa II *it freezes up, over*: C kaskatin; O kaškatin. *kaška·peθkahamwa TI *he closes it with metal, locks it with a key*: C kaska·piskaham; M kaska·pehkaham; sO keška·pekkaqank. *kaška·peθkahikani *key*: C kaska·piskahikan; M kaska·pehkahekan; sO keška·pekkaqekan. (Here the TI verb may well be of PCA age, but the derived nouns are certainly parallel new formations in the separate languages.) *kaškepitamwa TI and *kaškepita·wa AI with pseudo-object *he ties it shut*: C kaskipitam; M kaskepetaw. *kaškepita·kani AN *tobacco pouch*: C kaskipita·kan; O kaškipita·kan. *kaškikwa·Hsowa (H = h or q, indeterminate without a M cognate) AI *he sews*: C kaskikwa·so·w; sO keškikwa·sso. *kaškikwa·tamwa TI *he sews it*: C kaskikwa·tam; O kaškikwa·tank. We may suspect *kaškawanwi II *there is thick fog* on the basis of O kaškawan with that meaning and C(E) kaskawanipe·sta·w *it rains* (presumably drizzle from low wet fog). It is questionable whether the next form should be ascribed to the same root *kašk-: *kaške·lentamwa TI *he grieves (at it)*: C kaske·yihtam; M kaskenehtam; O kaške·ntam.

20. *kašk- *manage, deal with, can.* *kaškahwe·wa TA *he manages to deal with him by tool*: F kaškahwe·wa; O kaškawa·t *he takes him by tool; he pulls off his bark.* *kaškihe·wa TA *he manages, controls, obtains, buys, him*: F kaškihe·wa; C kaskihe·w; sO keškiqa·t; P kškəqat. *kaškihowa AI *he succeeds*: C kaskiho·w; O kaškiqo *he can get out or through.* *kaškihta·wa AI (pseudo-transitive) *he manages, gets, buys, controls it*: F kaškihto·wa; sO keškitto· and keškitto·t; C kaskihta·w.

21. *kataw-. F katawi (part. and prev.) *nearly, almost*: C katawa *properly, in seeming wise;* Sh katawi- *ability*; cf. M kate·w (with

prefix, neka·taw, changed kɛ·taw) *in intention.*

22. *kateški (part.): C katisk *exactly, completely*; M katɛ·s *come on; it is time.*

23. *kaθ- (or *kan-) and *kat-, negative. There are no exact cognates. F shows an array of particles: kanama· *not likely*, kana·kwa *by no means*, kana·hi *whatever it be*; kana·ta·ni *permit, at least, that* . . . . M has the negator with shapes kan and kat; it is this alternation that points to *kaθ- rather than *kan-. sO ka· kenake· *by no means, not at all.* Compare also, despite disagreement in quantity, F ka·ta *don't.*

24. *kaθk- *black*; many formations in C. *kaθkeše·wi *ashes, charcoal*: F kahkeše·wi (and reshaped kehkeše·wi); sO kekkiše·; P kəkš·e has the wrong shape and is perhaps a loan from Fox. Lacking a C or M form, the assignment of *charcoal* to this root is a guess. But note the C reduplicated form kaskaskisiw *ember.*

25. *kaw- *prostrate, reclining.* *kawaciwa AI *he freezes to prostration* (Bl. 261): C kawaciw; M kawa·cew; O kawaci. *kawahamwa TI *he fells it by tool*: M kawa·ham; O kawaqank. *kawahwe·wa TA *he fells him by tool or shot*: C kawahwe·w; M kawa·hɛ·w (*by shot*); sO kuwawa·t *he chops him down*; cf. Sh nikawqha *I cut him (tree) down.* *kawa·hkatosowa AI *he is weak from hunger*: C kawa·hkatoso·w; O kawa·kkatoso *he is skinny.* *kawa·hšiwa AI *he is blown down*: C kawa·siw; O kawa·šši; M kawɛ·qsew *he is blown down by wind* does not agree. For the II *it is blown down*, M shows kawɛ·qnen, agreeing with its formation of the AI, and O shows a recorded kwa·ssin, probably for kawa·ssin, pointing towards *kawa·hθenwi. *kawenamwa TI *he prostrates it by hand*: C kawinam; M kawɛ·nam; sO kuwinank; cf. Sh nikawena *I prostrate it by hand.* *kawene·wa TA *he prostrates him by hand* (Bl. 74 and 80): F kawene·wa; C kawine·w; M kawɛ·nɛ·w; sO kuwin·t. *kawenkwaqšiwa AI *he is sleepy* (Bl. 41): F kawekwašiwa (so by Bl. loc. cit.; his F lexicon lists only a possibly wrongly recorded kawe·hkwaši·wa); C kawihkwasiw; sO kuwinkušši; cf., with reduplication (within O) O kakkawinkwašši, and with reduplication and contraction (within M) M kaku·hkwaqsew. *kawihšimowa AI *he lies down, goes to bed*: C kawisimo·w; O kawiššimo. *kawiwe·pine·wa TA *he throws him down*: C kawiwe·pine·w; M kawe·wɛ·penɛw; O kawiwe·pina·t.

26. *kay-: C kaya·s *long ago, of old;* M kaye·s *in the past, previously.*

27. *kayaht- *ahead of time.* O kayatt *ahead of time, of one accord, originally, all in readiness;* C woman's name kayahte·yimo·w, presumably *she (who) is thoughtful in advance* or the like.

28. *kaya·Hkwa (unknown cluster) *gull*: M kaya·h, pl. kaya·hkok; O kaya·šk (pl. -ok). (Bl. page 89.)

29. *crow, raven*: C ka·hka·kiw; M ka·ka·kew; O ka·ka·kišši; P kakakš·i. Reconstruction of a prototype seems impossible: the forms have probably been reshaped by sound-imitation.

30. *ka·kik- (or *ka·kek-) *eternal.* *ka·kiki and *ka·kike·wi (part.) *forever, eternal*: F ka·kike·wi; C ka·kike·; M ka·kek; O ka·keke·; cf. Sh ka·kika *always.* *ka·kike·pakwi *evergreen*: M ka·kekɛpak (pl. -on); O ka·kike·pak.

31. *ka·kwa *porcupine*: C ka·kwa; O ka·k (pl. -ok); P kak; Sh. ka·kwa *groundhog.*

32. *ka·nt- *push.* The -t- shows mutation before *-we·p- and assibilation before *-ehk-. *ka·ncwe·pahamwa TI: M ka·hcwɛ·paham *he flings it with a shove by some instrument;* O ka·ncwe·paqank *he pushes, punts it (boat).* *ka·ncwe·penamwa TI *he shoves it with a push by hand*: M ka·hcwɛ·penam; sO ka·ncwe·penank. *ka·ncwe·pene·wa TA *he shoves him with a push by hand*: M ka·hcwɛ·penɛw; sO ka·ncwe·pena·t. *ka·ncwe·peškawe·wa TA *he shoves him with a kick or by pushing with body*: M ka·hcwɛ·peskawɛ·w; O ka·ncwe·piškawa·t. *ka·nsehkamwa TI *he shoves it with his foot*: M ka·hsɛhkam; O ka·nsikkank. *ka·ntahikwa·qswani *thimble*: M ka·htahekuaqswan; O ka·ntaqikwa·sson (sO ka·nteqikwa·ssuwin is a longer and per-

haps more recent formation). F shows the root in ka·cisahe·wa *he gives him a push;* the superficially most similar form elsewhere is O ka·ntissaqa·t *he gives him a hard shove,* but the two are not parallel.

33. *ka·si·- *rub.* *ka·si·hamwa TI: F ka·si·hamwa *he erases it;* C ka·si·ham *he wipes it, washes it.* The following pair differ only as to finals: *ka·si·nkwe·-: F ka·si·kwe·howa AI *he wipes his face;* C ka·si·kwe·w *he washes his face.*

34. *ka·sk- *dry* (?). Cf. *ka·šk- below. *ka·skanasowa AI *he whispers*: O ka·skanaso; P kasknəso; but M has ka·skanosow, as though from *ka·šk-. *ka·skana·pa·kwe·wa AI *he is thirsty*: O ka·skana·pa·kwe·; P kasknəpakwe. Cf. P kaskya II *it is dry.* M shows the root in ka·hkekɛsow AI, ka·hkekɛtɛ·w II *he, it gets dried up in the heat.* C shows it, perhaps, in ka·hke·wak *piece of dried meat.*

35. *ka·šake·nsa *cat*: C ka·sake·s; M ka·sakeh (pl. ka·sake·hsak); sO ka·šeke·ns; cf. P kašo. For cultural reasons the reconstruction must be questioned, though the agreement is exact.

36. *ka·šk- *scrape.* *ka·škahamwa TI *he scrapes, files it*: F ka·škahamwa; C ka·skaham; M ka·skaham. *ka·škahwe·wa TA *he scrapes him*: F ka·škahwe·wa; C ka·skahwe·w; M ka·skahɛw; P with reduplication kak·aškqat; Sh nikakhwa *I shave him* (kaqk- + -qh- yields kakh-). *ka·ška·θkwahwe·wa TA *he scrapes him as wood or solid; he smoothes him* (*tree*): M ka·ska·hkwahɛw; O ka·ska·kkwawa·t. The O secondary derivative ka·ška·kkwaqike· AI *he smoothes wood or solid things* and the M further secondary derivative ka·ska·hkwahikan *scraped substance* point to *ka·ška·θkwahike·wa and *ka·ška·θkwahikani respectively, but the formations could easily be more recent. *ka·škipya·ne·wa TA *he shaves him*: M ka·skepyanɛ·w, O ka·škipa·na·t. *ka·škipya·sowa AI *he shaves himself*: C ka·skipa·so·w; M ka·skepyasow; O ka·škipa·so. *ka·škipya·swani *razor*: C ka·skipa·son; M ka·skepyaswan; sO has the longer form ka·škepa·qcekan, and all the nouns could be recent formations. For *he shaves it,* M has the pseudo-transitive AI ka·skepyata·w, O the TI ka·škipa·tank; the full PCA stem is thus not reconstructable.

37. *ka·w- *prickly.* The nouns C ka·wiy, M ka·wey, and O ka·way *porcupine quill* (all AN), and Sh ka·wi *briar, thorn,* are presumably primary; the C, M, and Sh forms could point to *ka·wiya, but the O form does not fit. *ka·wimina AN *gooseberry*: F ka·wimina; M ka·wemen. O ka·wi·nkwe· AI *he is rough-faced* and C ka·wi·hkwe·yiw AI *he frowns* point perhaps to *ka·wi·nkwe·wa and a further derivative.

38. *ka·wa·ntikwa, *ka·wa·ntakwa *spruce,* perhaps built on the root *ka·w- just above; the *i/*a alternation recurs in some of the languages and is not unlikely for PCA (cf., for example, *ka·wiya just above, but O pointing rather to *ka·waya): M ka·wa··htek (pl. -ok); O ka·wa·ntak.

39. F ka·wihi *unnecessary,* C ka·wi *again* perhaps share a root or stem *ka·w-.

40. *ka·xp- *crunch, scrape.* *ka·xpame·wa TA: C ka·spame·w and O ka·ppama·t *he crunches him;* M ka·hpamɛw *he scrapes him clean as he eats him.* *ka·xpantamwa TI: O ka·ppantank *he crunches it;* M ka·hpahtam *he scrapes it clean as he eats* (*from*) *it.*

41. *kecky- *old.* *keckye·wa AI *he is old* (Bl. 32): F kehkye·wa; M kecki·w; inflection reshaped in O kikka·, P kk·ya. Sh shows kk-.

42. *kehtemiwa AI *he is lazy*: C kihtimiw; O kittimi.

43. F kehtenahi *truly* and P kət·ə, kət·ən *sure enough* may share a root or stem *keHt-.

44. *keHcipisowini *belt*: the agreement is not exact and the reconstruction is in doubt. F kehci·piso·ni shows long i·, and contraction of *-owi to o·; sO keccipesowin; P kcipsowən *belt, waist,* if correctly recorded, agrees with F as to the long *i·, but the initial cluster probably should be fortis. Cf. Sh kcipite *it is tied on.*

45. *kek- *having, with.* *keki (part. and

prev.) *having such and such a thing*: F keki; C kiki; M keke·h; sO keki; P kkə. *kekapiwa AI: F kekapiwa *he sits having something;* M keka·pew *he is in place, sits, dwells having something on or close to his person.* *kekesiwa AI: F kekesiwa *he has things along;* M kekɛ·sew *he has something on or close to his person; he is provided or equipped with something.* *kekeškamwa TI *he wears it, has it on or close to his person, as he goes*: F kekeškamwa; C kikiskam; M kekɛ·skam; P (conjunct) kkəškək. *kekeškawe·wa TA: F kekeškawe·wa *he goes having him;* C kikiskawe·w *he goes having him; he wears him;* M kekɛ·skawɛw *he goes having him; she is pregnant with him* (*the unborn child*). *keki·wa AI *he has things along*: F keki·wa; C(E) kiki·w *he is along, he has something.* P has other formations: kkəkapwə AI *he has, holds something;* kkəncəš·ən AI *he is buried with something;* kkənkoqwat TA *he buries him with something.*

46. *kekišye·pa (part.) *in the morning*: F kekišeye·pa (so recorded; our reconstruction assumes that this is an error for kekiše·pa); sO kekiše·p; P kkəšyep. The apparent discrepancy of the F form may point to borrowing, in which case the reconstruction is invalid.

47. *kelek- *mixed together.* In F keneka·-pehkwe·hiwa AI *he is gray-haired* and keneke·na·sowa AI *he is cooked in mixture;* in C kiyikaw (part.) *all over, pell mell, every kind*; in Sh forms beginning kileky-. *kelekipye·- appears in M kenɛ·kepi·qnen (and -nan) II *it is sleeting;* O kinikipi·ki· II *it is raining and snowing together.*

48. *keliwa *eagle*: C kihiw (if we can assume earlier *kihyiw from still earlier *kiyiw, within C); M kene·w; O kiniw (also a kind of hawk); cf. P kno. Possibly cf. Miami kalänalisia *hawk.*

49. *kemiwanwi II *it rains* (Bl. 59, 60): C kimiwan; M kene·wan; sO kemiwan; P kməwən; reshaped in Sh kimowa·nwi. P has also kməya (called 'Forest Potawatomi' by informants), matching F kemiya·wi.

50. *kemot-, *kemo·t- *steal.* Compare *ki·m-. In the present case, C shows the short *o, and M could reflect either the short *o or long *o·, while the other languages point to the long *o·. *kemo(·)twa TI *he steals it*: F kemo·twa; sO kemo·tit; P kmotət; inflectionally reshaped in C kimotiw, M kemo·tɛw (AI) *he steals something;* cf. Sh kimo·twa *he steals,* nika·-kimo·te *I always steal.* *kemo(·)teme·wa TA *he steals it from him*: F kemo·teme·wa; M kemo·temɛw; O kimo·tima·t; cf. Sh okimo·tema·li. C kimotiskiw AI *he is a thief* and M kemo·tɛhkow (ditto) could point to *kemoteθkiwa (last three phonemes not certain); the C form and O kimo·tiški (ditto) could point to *kemo(·)teškiwa; but no k-cluster for PCA so far recognized provides for the forms in all three languages.

51. *kene·pikwa *snake*: C kine·pik (pl. -wak); sO kene·pik (pl. -wak or -ok). Cf. Sh kinyeqpikwa *spider.* M kenu·pik (pl. -wak) *snake* has perhaps been reshaped through association with derivatives of *kenw- *long* in which the second syllable has *-o· (e.g., M keno·sew *he is long*).

52. *kent- *immerse*; in all the examples followed by medial *-a·pye· *water, liquid.* *kenta·pye·hamwa TI *he immerses it with stick or tool*: M kɛhta·pi·ham; O kinta·pi·-qank. *kenta·pye·namwa TI *he immerses, dips it by hand*: M kɛhta·pi·nam; O kinta·-pi·nank. *kenta·pye·ška·wa AI and *kenta·-pye·ška·wi II *he* (*net*), *it goes under water, under a liquid*: O kinta·pi·ška· AI; M kɛhta·-pi·skaw II.

53. *kenw- *long.* Cf. Sh kin(w)-. *kenosiwa AI *he is long*: F kenosiwa; C kinosiw; M keno·sew; cf. sO keno·si, probably cognate but reflecting different habits of treatment of interconsonantal -we-, and P knosə *he is tall.* *keno·hta·wa AI (pseudo-transitive): F keno·htowa *he builds it as a long house* (usual inflectional reshaping); O kino·tto·t (and also kinwa·tto·t) *he makes it long;* M has rather keni·htaw *he makes it long.* For the TA *he makes him long,* M has keni·hɛ·w, and O kino·qa·t, showing again disagreement in internal sandhi, though doubtless shared

root and shared final. *keno·nte·wi II *it is a long house*: F keno·te·wi; O kino·nte·makat; cf. M keno·htem (pl. kenu·htemyan) *long house*. *kenwa·wi II *it is long*: C kinwa·w; O kinwa·; P knwa; M reshaped keni·w. *kenwa·lowe·wa AI *he is long-tailed*: C kinwa·yo·we·w; O kinwa·nowe·w. *kenwa·pye·katwi II *it is a long string*: M benuapi·kat; O kinwa·pi·kat; cf. C reshaped kinwa·pe·kan. *kenwa·pye·kesiwa AI *he is a long string, long snake*: M kenuapi·kesew; sO kenwa·pi·kesi. *kenwa·θkosiwa AI *he is a long solid, a long timber, a tall tree*: C kinwa·skosiw; M kenuahkosew; O kenwa·kkosi. *kenwa·θkwatwi II *it is a long stick*: M kenuahkwat; O kinwa·kkwat. *kenwe·ši (part.) *for a long time*: F kenwe·ši; C kinwe·s; M keni·s; O kinwe·š. *kenošye·wa *fish*: C kinose·w; M kinu·si·w *pickerel*; sO keno·še *pike*; P knoše.

54. *kep- *closed, blocked*. *kepahamwa TI *he closes it with something*: C kipaham; M kepa·ham; O kipaqank; cf. Sh nikipha *I shut it up with lock and key*. *kepahikani: F kepahikani *fence*; C kipahikan *obstruction, dam, cover*; O kipaqikan *basket cover*; Sh. kiphika *lock*. *kepahika·sowa AI *he is closed, obstructed, covered up*: C kipahika·so·w; O kipaqika·so. *kepahike·wa AI *he closes, encloses, covers things*: F kepahike·wa; M kepa·hikɛw. *kepahoni *diaphragm, waist* (possessed only): M kepa·hon (nekɛ·pahoneh *at my waist*); O kipaqon (ninkipaqon *my diaphragm*). *kepahwe·wa TA *he covers, blocks, locks him up*: F kepahwe·wa; C kipahwe·w; M kepa·hɛw. *kepancihikani *lid, stopper, cork*: F kepacihikani; M kepa·hcehekan. *kepatenwi (Bl. 262) II *it freezes over*: F kepatenwi; M kepa·ten; O kipatin; P kpətən· *kepaθa·mowa AI *he chokes* is implied by O kipana·mo and the longer C form (with TA final *-eškaw) kipata·moskawe·w *he cuts off his breath by foot or body*. *kepa·θkoškamwa *he block it, shuts its door* is implied by the F secondary derivative TA kepa·hkoškamawe·wa *he blocks it for him*, though M has only an II kepa·hkoskaw *it goes shut; its door or cover moves shut*. *kepa·θkwahamwa TI *he closes it up as or with a solid*: M kepa·hkwaham; sO kepa·kkuqank. *kepa·θkwahikani: M kepa·hkwahekan *can, tin, preserved jar*; O kipa·kkwaqikan *dam; cover; thing for closing* is probably safe despite the exclusively modern meanings of the M form. *kepa·θkwahika·te·wi II *it is covered up, closed*: M kepa·hkwaheka·tɛw; sO hepa·kkuqika·te·. *kepa·θkwahwe·wa TA *he closes him up as or with a solid, he jails him, locks him up*: M kepa·hkwahɛw; sO kepa·kkuwa·t; P kpak?wat is safe; but the derived nouns for *jail*, M kepa·hkwahotiwikamek, O kipa·kkaqoti·wikamik, are marked as new formations both by meaning and by shape. *kepeškamwa TI *he blocks it by position or body movement*: M kepɛ·skam; O bipiškank. *kepeškawe·wa TA *he blocks him, blocks the way for him, by position or body movement*: F kepeškawe·wa; C kipiskawe·w; M kepɛ·skawɛw. *kepeška·wa AI *he is blocked, constipated*: M kepɛ·skaw; O kipiška·. *kepetone·ne·wa TA *he covers his mouth or opening by hand*: F kepetone·ne·wa; M kepe·tonɛnɛ·w, *kepihšime·wa TA *he lays him so as to block something*: F kepišime·wa; M kepe·hsemɛw. *kepihšinwa AI *he lies blocking; he falls so as to block something*: F kepišinwa; M kepe·hsen; Sh kipšinwa *he lies in the path*. *kepihθenwi II *it lies or falls so as to block something*: F kepisenwi; M kepe·hnen; O kipissin. *kepiškwa·nt- *blocking the doorway*, with particle final -e in F kepiškwa·te; with loss of final consonant, or with particle final -i (dropping), in C(E) kepiskwa·h, kepisk·wahc. *kepiθencye·hšinwa AI *he lies with his hand covering or blocking something*: M kepi·nɛhci·hsen; O kipininci·šsin. *kepokenwi II *it grows shut, heals*: C kipokin; O kipokin. *keposikani: M kepo·sikan *instrument for covered cooking; thing covered in cooking; pie;* O kiposikan *oven*. O kipinank TI *he covers it with his hand* would imply *kepenamwa; but C(E) kiponam, M kepo·nam, and Sh nikipona *I close it by both hands* point to *keponamwa, as though the root here appeared in a by-form *kepw-. *kepene·we·

ne·wa TA *he chokes him*: O kipine·we·na·t; P kpənewenat.

55. *keqsenya·wi (or *keqsinya·wi?) II *it is cold weather*: C kisina·w; sO kessina·mekat; P ks·ənya. C kisin, M kɛqsiw, and F kesiya·wi (all II with same meaning as preceding) agree in pointing towards root *keqs-, but differ in formation.

56. *keqt- *big, much; old.* *keqci (part.) *big, much* (Bl. 135): F kehci; C kisci; M kɛ·qc; sO kecci; P kc·ə. *keqcikami *sea, ocean*: M kɛqcekam; O kiccikam; Sh kcikami; cf. F kehcikami·wi. *keqciθencyi *thumb*, normally (or always?) in possessed form: M keqcenɛh; O kiccininc; P kcənəc (so recorded; probably kc·-). *keqcineθki *right hand*: in possessed form: C kihcinisk (kihciniskihk *at the right*); in O the occurrent form is a derived verb, kiccinikka· (e·si-kiccinikka·yan *at your right*). *keqcisita *big toe*, normally (always?) possessed: M kɛqcesɛt; O kiccisit. *keqtesiwa *old person*: F kehtesiwa; sO kettisi used only in possessed form, e.g. nenkittesi·mak *my parents*. *keqtwika·ni *farm, field*: F kehtika·ni; C kistika·n *grain*; sO kettika·n (M loan from O, kehteka·n *Farm* as a man's name); P kt·əkan (recorded kt-); Sh ktika·, pl. -na, *field*. *keqtwike·wa AI *he farms*: C kistike·w; sO kettike·; P kt·əke (recorded kt-); cf. Sh niktike *I plant something*. *keqtwike·wilenyiwa *farmer*: C (E) kistike·wiyiniw *farmer, farm-instructor*; O kittike·winini; but quite probably the formations are new. We can possibly regard the following verb as formed from the same root: *keqtene·wa TA: F kehtene·wa *he holds him fast;* M kɛqtɛnɛ·w *he takes him for good, appropriates him*. More dubious is the following particle, deviating from the root not only by initial change but in the cluster: *ke·hte·- *old*: F ke·hte·; C ke·hte·; O ke·tte·.

57. *kesi·- *rub, wipe, wash.* *kesi·hθakahike·wa AI *he scrubs the floor*: M kese·hnakahekɛw; O kisi·ssakaqike·. *kesi·nkwe·wa AI *he washes his face*: F kesi·kwe·wa; O kisi·nkwe·; P ksikwe; cf. M kesi·hkwan *towel*. *kesi·pye·kihθakinike·wa AI *he scrubs the floor*: C kisi·pe·kihtakinike·w; sO kesi·pi·kessakenike· *he washes woodwork*. *kesi·pye·kinamwa TI *he washes it*: C kisi·pe·kinam; sO kesi·pi·kenank. *kesi·pye·kisite·wa AI *he washes his feet*: C kisi·pe·kisite·w; O kisi·pi·kisite·. *kesi·pye·kiθencye·wa AI *he washes his hands*: C kisi·pe·kicihce·w (earlier C -t- assibilated to -c- because of following -c-); sO kesi·pi·keninci·. Note the divergence of meanings in the form without the medial *-epye· *liquid*: *kesi·θencye·wi AI: F kesi·nece·wa *he washes his hands;* but sO kesi·nenci· and P ksince *he wipes his hands*.

58. *kešy- *hot, heat.* *kešisowa AI *he is hot, has a fever*: C kisiso·w; M kese·sow; sO kešiso; P kšəso; Sh kišiθo. *kešite·wi II *it is hot*: C kisite·w; M kese·tɛ·w; sO kešite·; P kšəte (recorded with fortis t·, probably error of hearing); Sh kišite. *kešya·kamesamwa TI *he heats it as liquid*: C kisa·kamisam; O kiša·kamisank. *kešya·kamesike·wa AI *he heats water*: C kisa·kamisike·w; O kiša·kamisike·. *kešya·kamete·wa II *it is heated as liquid*: C kisa·kamite·w; O kiša·kamite·. *kesya·peθkesamwa TI *he heats it as stone or metal*: M kesiapɛhkesam; sO kešapekkisank; P kša·pk·əsək (pk recorded as lenis, probably error). *kešya·peθkesikani: M kesiapɛhkesekan *stove*; O kiša·pikkisikan *stove, oven*. *kešya·peθkesowa AI *he is heated as stone or metal*: C kisa·piskiso·w; M kesiapɛhkesow; O kiša·pikkiso. *kesya·peθkeswewa TA *he heats him as stone or metal*: C kisa·piskiswe·w; M kesiapɛhkesi·w; O recorded as 'kišappikiswa·t', no doubt error for kisa·pikkiswa·t; P kšapk·əswat (pk recorded as lenis). *kešya·peθkete·wi II *it is heated as stone or metal*: M kesiapɛhketɛ·w; sO kešapekkite·. *kešya·qte·wi II *it is hot weather*: C kisa·ste·w; sO kešatte·; P kšate (interesting because in some cases P retains *y after *š).

59. *kešy- *good, gentle, magnanimous.* *kešye·hi (prenoun; ending -hi not certain): F keše·; C kise·; O kiše·; P kše. The next form shows a postradical *-e·w: *kešye·wa·tesiwa AI *he is gentle, good, generous*: C kise·wa·tisiw; O kiše·wa·tisi. *kešya·tesiwa AI *he is kind*: M kesiatesew; P kšatsə *he is glad;* cf. F keša·tesiweni *kindness*. *kešya·-

θe·wa TA *he is kind towards him, stays by and looks after him (as, a child)*: C kisa·te·w; M kiša·na·t. The final form shows a postradical *-a·w and modification of meaning: *kešya·we·lencike·ckyewa* AI *he is of envious disposition, disposed to envy*: M kesiawɛ·nehcekɛ·ckiw; sO keša·we·nceke·ški.

60. *ket- *all* (?) Apparently limited to the following. *ketamwa TI *he eats all of it*: M keta·m; O ketank; reshaped as pseudotransitive AI in C kita·w. *ketamwe·wa TA *he eats all of him*: C kitamwe·w; M keta·mi·w; O kitamwa·t.

61. *ket- *out of enclosure or entanglement.* *kecipisowa AI *he speeds forth*: M kecɛ·pesow; O kicipiso. *ketahwe·wa TA *he takes him out*: F ketahwe·wa; M eta·hɛ·w *he pries him out;* cf. Sh nikitha *I dig it up,* presumably from the paired TI (**ketahamwa). *ketenamwa TI *he takes it out by hand*: F ketenamwa; M ketɛ·nam *he takes it out of a snug or tight place.* *keteška·θkonamwa TI *he removes it from entanglement as solid*: M kete·ska·hkonam; O kitiška·kkonank *he unbuttons it* (recorded, probably erroneously, with sk instead of šk). *keteškenamwa TI *he gets it free (in his hand)*: M kete·skenam; O kitiškinank (also recorded with sk). *keteškene·wa TA: M kete·skenɛw *he manages, is strong enough, to lift him in his hands;* C kitiskine·w *he fumbles him (ball);* O kitiškina·t *he gets him free* (recorded with sk). *keto·te·wa AI *he crawls out*: F keto·te·wa; sO keto·te·; P ktote. The following forms show *keciqt-, with a medial (or postradical) -qt *action relative to an object;* but none of the whole stems is reconstructable: F kecihtanwi II *a spring comes forth;* C (N) kicistahina·kane·w AI *he washes dishes;* M kece·qtaw *he moves out of a narrow or snug place.* *kecipahiwe·wa AI *he flees, runs from an enclosure*: O kicipaqiwe·; P kcəpqəwe.

62. *ketak- *spotted, mottled.* *ketakesiwa AI *he is spotted, mottled*: F ketakesiwa; O recorded as 'katakisi', probably error for kitakisi; Sh kitakeθi. Cf. O kitaka·kko·ns *fawn*; M keta·ken AI and keta·ki·w II *he, it, is mottled, spotted.*

63. *ketem- *in a bad way, ruined, miserable.* *ketemahe·wa TA: F ketemahe·wa *he abuses him;* C kitimahe·w *he ruins, destroys him;* M ketɛ·mahɛw *he makes him miserable.* The remaining examples begin with *ketema·k-, which might reflect *ketemawek- with the irregular contraction of Bl. §19. *ketema·ki (particle): F ketema·ki (preverb) *piteously*; C kitima·ki (prenoun and preverb) *pitiable, pitiably*; M ketɛ·ma·k *it's a shame! I should say so.* *ketema·kesiwa AI *he is miserable, poor, in a plight*: F ketema·kesiwa; C kitima·kisiw; M ketɛ·ma·kesew; sO ketima·kesi; P ktəmaksə. *ketema·ke·leme·wa TA: F ketema·ke·neme·wa *he pities him;* C kitima·ke·yime·w *he blesses, loves him.* *ketema·ke·lentamwa TI *he pities it*: F ketema·ke·netamwa; C kitima·ke·yihtam. *ketema·kina·kosiwa AI *he looks miserable, poor*: M ketɛ·ma·kenakosew; O kitima·kina·kosi. *ketema·kinawe·wa rests only on the C TA kitima·kinawe·w *he looks upon him with pity,* plus the longer F ketema·kinawe·he·wa *he makes him feel pity.*

64. *ketow-: F ketowa AI *he hoots, quacks, etc.*; C kito·w AI *he calls* (misi-kito·wak *it thunders*); cf. M keto·wɛ·w II *it (gun) makes noise, report.*

65. *keθ-. *keθahamawe·wa TA *he forbids, dissuades him*: F kenahamawe·wa; C kitahamawe·w; sO kenaqemawa·t; P knəqməwat. *keθahama·ke·wa AI *he forbids people*: C kitahama·ke·w; O kinaqama·ke·.

66. *keθ- *graze, scratch,* perhaps *injure.* *kešihkahwe·wa (*-hk not certain) TA: F kešihkahwe·wa *he scratches him*; O kišikkawa·t *he (missile) hits and hurts him.* *kešihšinwa AI: C kisisin *he gets a splinter, gets impaled;* O kišiššin *he gets hurt.* C kitiskahwe·w TA *he grazes him with a shot* and M kenɛ·skawɛw *he attacks him* agree except as to the TA final (*keθešk-, with *-ahw in C, *-aw in M). *kešime·wa TA *he angers him by speech*: C kisime·w; M kese·mɛ·w.

*kešiːp- extended root, *itch, scratch.* *kešiːpesiwa AI *he itches*: F kešiːpesiwa; M kese·-

pesew. No other complete stem agreements: e.g., sO keši·pentipe· AI *his head itches* points to *keši·pintepe·wa, but F has only the longer keši·pitepe·no·wa *he scratches his head*.

*kešyi·p- extended root *speed*. *kešyi·pahta·wa AI *he runs fast*: C kisi·pahta·w; M kesi·pahtaw. *kešyi·pisowa AI *he speeds* (Bl. 15): M kesi·pesow; O kisi·piso.

*kešy- in the meaning *speed* seems to recur in M kesiahkaw AI *he goes fast*, O kiši·kka· and P kšek·e (ditto), but the rest of the stems do not agree.

67. *keθk- *know, recognize*. *keθkahike·wa AI: F kehkahike·wa *he is appointed*; C kiskahike·w *he points things out*; M kɛhka·hekɛw *he judges by a sign*; cf. the P TA kk·əqwat *he appoints him* (presumably pointing to **keθkahwe·wa). *keθke·leme·wa TA *he knows (about) him*: C kiske·yime·w; O kikke·nima·t; P kk·enmat. *keθke·lentamwa TI *he knows it*: F kehke·netamwa; C kiske·yihtam (also formal object *he is conscious*); sO kekke·ntank; P kk·entək. *keθke·lentamwihe·wa TA *he makes him know it*: F kehke·netamwihe·wa; C kiske·yihtamihe·w (or -ohe·w, transcription not clear). *keθke·lenta·kosiwa AI *he is known*: F kehke·neta·kosiwa; sO kekke·nta·kusi. *keθke·lenta·kwatwi II *it is known*: F kehke·neta·kwatwi; O kikke·nta·kwat; P kk·entakwət.

Extended root *keθkinaw-. *keθkinawa·ci (part.): F kehkinawa·ci *as sign or signal*; O kikkinawa·c *by mark, model, sign, pattern*. *keθkinawa·cihta·wa AI (pseudo-transitive) *he puts a mark on it*: F kehkinawa·cihto·wa; C kiskinawa·cihta·w; O kikkinawa·citto·t. *keθkinawa·cihe·wa TA *he puts a mark or sign on him*: O kikkinawa·ciqa·t; P kk·enwacqat. *keθkinawa·pame·wa TA *he learns by watching him, he watches him to learn*: F kehkinawa·pame·wa; C kiskinawa·pame·w; O kikkinawa·pama·t *he imitates him*. *keθkinawa·pantamwa TI *he watches it to learn, learns it by observation*: F kehkinawa·patamwa; C kiskinawa·pahtam; M kɛhke·nawapahtam; O kikkinawa·pantank.

Extended root *keθkinw-. *keθkino·hamawe·wa TA *he teaches (it to) him*: F kehkino·hamawe·wa; C kiskino·hamawe·w; M kɛhke·no·hamowɛ·w; O kikkino·qamawa·t; P kk·ənoqməwat. *keθkino·hamaweke·wa AI *he teaches people*; here C and O show contraction of *-awi- to *-a·, while M does not (Bl. §19): C kiskino·hama·ke·w; M kɛhke·no·hamowekew; O kikkino·qama·ke·. **keθkino·hama·twiwikamik- *schoolhouse, school* (doubly starred because of the meaning and because the sO form, if correctly recorded, does not quite fit): C kiskino·hama·to·wikamik; M kɛhki·nu·hamatiwikamek; sO kekkino·qema·ti·wekamik.

*keθkiwe·honi *flag* (certainly a new meaning, but the form may be old): C kiskiwe·hon; M kɛhke·wɛ·hon.

68. *keθo-, *kaθo·- *talk*; C shows reflexes of the former, the other languages of the latter; always followed by *-t or *-θ. *kaθo·tamwa, *keθotamwa TI *he speaks to it*: F kano·tamwa, C kitotam. *kaθo·θetwiwaki, *koθoθetwiwaki AI *they talk to each other*: F kano·netiwaki; C kitotito·wak; O kano·nitiwak. *kaθo·θe·wa, *keθoθe·wa TA *he talks to him*: F kano·ne·wa; C kitote·w; sO keno·na·t (and redupl. O kakano·na·t); P knonat (and redupl. kkənonat); cf. Sh nikalo·la *I talk to him*. The alternation between *o· and *o may reflect different patterns of treatment of interconsonantal *wi (i.e., root ending in *-θw, connective *-i- before *-t and *-θ).

69. *keθp- *thick*. By *θp we designate, arbitrarily, a PCA cluster like *xp except that it yields F p instead of hp. *keθpakya·wi II *it is thick*: F kepakya·wi; C kispaka·w; sO keppaka·makat (shorter form not attested). Compare, with the same meaning, M kɛhpa·kan, Sh kpakinwi.

70. *ke·h-: *ke·hi (additive limiting particle) (Bl. 346): F ke·hi *also, only*; M ke·h; possibly O ke·, though this O emphasizing particle precedes the word modified, while the F and M particles follow.

71. *ke·hke·hkwa *hawk*: C ke·hke·hk (pl. -wak); M kɛ·hkɛh (pl. kɛ·hkɛ·hkok); O ke·kke·kk *fish hawk*.

72. *ke·hšaw- *loose*. *ke·hšawihθenwi II *it (axe) is loose on the handle*: M ke·hsawe·hnen; O ke·šša wissin. Cf. F kešaw- in kešawahoko·wa AI *he is made loose by going*, kešawenamwa TI *he holds it loosely*. *ke·hšaw- may be related to a root *kehšaw- (the latter attested only in F) by initial change.

73. *ke·k-. The only cognates sharing a whole stem point to *ke·kya·t- *nearly, almost*: F ke·kya·ta; C ke·ka·, ke·ka·c, and preverb ke·ka·ci; O ke·ka·. Otherwise, F, C, and O have temporal particles beginning with the root: F ke·ke·wa·ci and ke·keya·hi *finally, in time (not late)*; C ke·ka *it has come to that time, impendingly, in immediate prospect*; O ke·kappi· *in the end, finally, in the outcome*.

74. *ke·ko·hi *something, anything*: F ke·ko·hi; M kɛ·ko·h; O ke·ko·; P keko; cf. C ke·kwa(y) and ki·kwa(y) (northern C with n instead of y?), inflected pronoun *thing, something, what?*

75. *ke·ma·w-: M kɛ·ma·w *perhaps, or perhaps* (kɛ·ma·w men new *or else*); O ke·ma· *or, or else*.

76. *ke·qseθk- *in time*. *ke·qseθkawe·wa TA *he comes in time for him, comes upon him*: C ke·siskawe·w; O ke·ssikkawa·t. *ke·qseθkoθe·wa TA *he gets hold of him in time*: M ke·qsɛhkonɛ·w; O ke·ssikkona·t *he saves, rescues him*; cf. C ke·siskota·to·wak AI *they come upon each other, attack each other*.

77. *ke·sip-. In M ke·sepɛnɛ·w TA, ke·sepɛnam TI *he folds him, it up uselessly, uselessly handles him, it*; and sO ke·sepi·kenank TI *he folds it up* (and other O formations).

78. *ke·ya·pi-: C ke·ya·pic *in further progress, again, still*; O ke·ya·pi *still, yet, as yet*; P keyapə *anyhow, in spite of something*; cf. F ke·ye·ci·hi *for a little while, soon*.

79. *ki·he·wa TA *he gets away from him*: C ki·he·w; O ki·qa·t.

80. *ki·hk- *injure*. *ki·hkaciwa AI *he is injured by the cold; he is frozen, feels cold*: M ke·hkacew; O ki·kkaci. The remaining examples have *ki·hka·- plus *-em *by speech*, or else *ki·hk- and a by-form *-a·m of the medial. *ki·hka·me·wa TA *he berates him* (Bl. 49): C ki·hka·me·w; M ke·hkamɛw; O ki·kka·ma·t. *ki·hka·ntamwa TI *he berates it* (Bl. 285): C ki·hka·htam; M ke·hka·htam; O ki·kka·ntank. *ki·hka·ntwiwaki AI *they berate, slander each other; they quarrel*: C ki·hka·hto·wak; M ke·hka·htowak; O ki·kka·ntiwak. P kik·icqat *he injures him* may contain the same root. Cf. also M ki·hkamɛw TA *he bites him to death*, which may belong here, though the first-syllable -i·- is obscure.

81. ki·hki·hk- *against one's will, against opposition* (related to *ki·hk- above?) *ki·hki·hki (part.) *in defiance, in spite of . . ., nevertheless*: F ki·hki·hki; C ki·hki·hk. *ki·hki·hkime·wa *he bids or persuades him against his will*: F ki·hki·hkime·wa; C ki·hki·hkime·w.

82. *ki·HSa·t- *trouble, bad, sorry* (lacking M and C forms, the cluster can be *-hs, *-qs, *-hθ, *-qθ, *-hl, or *ql). *ki·HSa·te·lentamwa TI *he troubles about it*: F ki·sa·te·netamwa; O ki·ssa·te·ntank *he thinks it bad*(?), *he is eager for something*; P kis·atentək. O has also ki·ssa·te·nima·t TA *he is sad about him*.

83. *ki·kito- *talk*. P kiktoqat *he keeps on talking to him* shows the PCA form cited (certainly more than a root); in the remaining forms *-w is added. *ki·kitowa AI *he talks*: M ke·ketow; O ki·kito. *ki·kitowilenyiwa (shape?) *councilman*: M ke·ketowenɛniw; O ki·kitowinini. *ki·kitowikamikwi *councilhouse*: M ki·ketowikamek (pl. -on); O ki·kito·wikamik (loc. -onk).

84. *ki·m- *in secret, stealthily*. P kimapə AI *he peeps* points to *ki·ma·piwa, which then underlies *ki·ma·pame·wa TA *he peeps at him*: M ke·ma·pamɛw; O ki·ma·pama·t. *ki·mene·wa TA *he feels her secretly*: F ki·mene·wa; C ki·mine·w *contrectat eam*; M ke·menɛw. *ki·menecya·kana *bastard*: C ki·minica·kan; M ke·menɛciakan; cf. O ki·mini·ca·kan. *ki·mi·wa AI *he sneaks away, escapes*: F ki·mi·wa; C ki·mi·w; M ke·mɛ·w. A longer form *ki·mo·t- appears

in our other examples: *ki·mo·ci (part.) *stealthily, secretly*: F ki·mo·ci; C ki·mo·c (part.), ki·mo·ci (prev.); M ke·mo·c. *ki·mo·tesiwa AI *he is stealthy*: F ki·mo·tesiwa; C ki·mo·tisiwak *they have an illicit relation*; M ke·mo·tesew; P kimotsɔ·. *ki·mo·sa·pame·w TA *he stealthily observes him* (with usual assibilation of *-t before *-a·p): M ke·mo·sa·pamɛw; O ki·mo·sa·pama·t. P kimotpitke *he sneaks in* is probably a new formation. Sh. shows the root *ki·m-, but no cognate stems.

85. *ki·nl- *sharp*. The *-nl is based on the M form with -hn cited below; but C shows -n, which is compatible only if the Plains C forms are loans from the n-dialects to the north. The only other possibility is *ki·n-, regarding the M word as belonging to some other root, otherwise not attested. *ki·nlya·wi II *it is sharp*: O ki·na·; P kinya. *ki·nlihe·wa TA *he sharpens him*: F ki·nihe·wa; O ki·niqa·t. *ki·nlikahamwa TI *he hews it to an edge or point*: C ki·nikaham; M ke·hnekaham. *ki·nlipota·wa AI (pseudo-transitive) *he sharpens it*: C ki·nipota·w; but sO ki·nepo·to·t with long o·. Possibly C ki·hka·na·kosiw AI *he looks sharp and clear* and M ke·hkan II *it is sharp* point towards a shared *ki·nk-, representing *ki·nl- joined without connective *-i- to an unidentified suffix.

86. *ki·p- *fall down*. *ki·pihle·wa AI *he falls down, off, over*: F ki·pise·wa; O ki·pisse· (for the *-hl compare C ki·pihyahkine·w TA *he pushes him headlong*). From F ki·peškamwa TI *he tips it over by foot* and Sh niki·pškawa *I make them fall by kicking* we can guess at *ki·peškamwa TI.

87. *ki·sehswa AN *sun, moon, month*. M ke·sɛh (in the expression ke·sɛh ɛ·hkwah *all day long*); O ki·siss; P kisɔs·. The F and Sh forms have ki·š- instead of ki·s-, perhaps contamination from *ki·šek- *day, sky*: F ki·šeswa; Sh ki·šaqθwa and ki·šθwa (the second by normal loss of one mora of vowel before Sh preconsonantal q; the first with the vowel analogically restored).

Alternatively, perhaps we should reconstruct *ki·šehswa, which yields the F, Sh, and M forms, and leave the O and P forms to be explained by assimilation.

88. *ki·š- *completed*. *ki·ši (part., prev.): F ki·ši; C ki·si; M ke·s; P kiš. *ki·(h)- (prev.) past time: F ki·h; C ki·h *past time; able to*; O ki·; P ki. *ki·sa·ci (part.): C ki·sa·c *right away, at the same time*; M ke·sa·c *beforehand*; cf. O ki·ša· *in readiness*. *ki·ša·cime·wa TA *he finishes the story of him*: M ke·sa·cemɛw; O ki·ša·cima·t. *ki·ša·cimowa AI *he finishes his story*: F ki·ša·cimowa; C ki·sa·cimo·w; M ke·sa·cemow. *ki·š(y)a·nehke·wa AI *he finishes digging*: F ki·ša·nehke·wa; O ki·ša·nikke·. *ki·šiqta·wa AI *he finishes his work or movement*: M ke·seqtaw; O ki·šitta· *he decides* (sO recorded as ki·ši·tta·). *ki·šiqta·makatwi II *it finishes its work or action*: M ke·seqtamakat; sO recorded as ki·ši·tta·mekat. *ki·šesamwa TI *he finishes the application of heat to it; he cooks it done* (Bl. 226): F ki·šesamwa; C ki·sisam; M ke·sesam; O ki·šisank; probably Sh niki·šeθa *I cooked it*. *ki·šesamawe·wa TA *he cooks it for him*: F ki·šesamawe·wa; C ki·sisamawe·w. *ki·šesowa AI *he is cooked done* (Bl. 227): F ki·šesowa; C ki·sisow; M ke·sesow; O ki·šiso. *ki·šeswe·wa TA *he cooks him done* (Bl. 225): C ki·siswe·w; M ki·sesiw; O ki·šiswa·t; P kišwat (recorded as kis·wat, which may be right: i.e., š may assimilate to following s, and then the cluster become identical with the fortis s· of other origins). Compare also P kišsek·we *he finishes cooking* (recorded with s·). *ki·šete·wi II *it is cooked done* (Bl. 228): F ki·šete·wi; ki·site·w; M ke·setɛw; O ki·šite·. *ki·šihe·wa TA *he completes, finishes, gets done with, him*: F ki·šihe·wa; C ki·sihe·w; M ke·sehɛw; O ki·šiqa·t. *ki·šiho·wa AI *he completes himself* (probably short *-o, also in the F form recorded with -o·): F ki·šiho·wa; O ki·šiqo *he forms himself, takes shape; he gets dressed up*. *ki·šihta·wa AI (pseudo-transitive) *he completes it*: F ki·šihto·wa; C ki·sihta·w; M ke·sehtaw; sO ki·šetto·t and also O ki·šitto· *he decides* (normal AI, not pseudo-transitive). *ki·

šikenwi II *it matures*: F ki·šikenwi; M ke·sekɛn. *ki·šikiwa AI *he matures, grows to maturity, is full-grown*: F ki·šikiwa; M ke·sekew; O ki·šiki. The exact shape of the derived causative TA is not certain: F ki·šiki·hiwa *he brings him up*; M ke·sekehɛ·w. F ki·šipye·ya·wi II *the leaves are out* and O ki·šipaka· (ditto) do not converge. *ki·šwike·wa AI *he finishes building a house*: F ki·šike·wa; C ki·soke·w. *ki·še·lentamwa TI: C ki·se·yihtam *he completes his plan of it*; M ke·sɛ·nehtam. In the following case, the root is joined without connective -i- to *-po *eat*, yielding apparently both *-hp and *-xp because of the two C forms: *ki·hpowa, *ki·xpowa AI *he has his fill of food*: C ki·hpo·w, ki·spo·w; M ke·hpow *he has indigestion, a stomach-ache*; cf. F ki·hpoce·wa *his belly is full*.

The following belong to the same root, though the formation and correspondence are obscure: M ki·siahkasow AI *he pays off his debts*; O ki·ši·kka·so (ditto).

89. *ki·š- *warm* (cf. *kešy-; conceivably the present root could have been taken from the combinations *ki·šes-, *ki·šet- *finish application of heat to* by a sort of back-formation). *ki·šowihšinwa AI *he lies warm*: F ki·šowišinwa; the other modern forms show a contraction of *-owi to *-o· (cf. Bl. §19): O ki·šo·ššin; Sh ki·šoqsinwa *he lies warmly covered*.

90. *ki·šehk- *cedar*. *ki·šehka AN: M ke·sɛh (pl -kak) *cedar bough, leaf*; O ki·šikk *cedar (tree)*. *ki·šehka·ntaka (or *ki·šehka·ntika) *cedar (tree)*: M ke·sɛhka·htek AN; O ki·sikka·ntak. *ki·šehkiθkyi *cedar grove, swamp, land*: M ke·sɛhki·hkiw; O ki·šikkikki. *ki·sehkikopyi *(inside) bark of cedar tree*: M ke·sɛhkekop (pl -yan); O ki·šikkikop. Cf. P kišk(·)i *flat cedar*.

91. *ki·šek- *day, sky*. *ki·šekwi *day, sky*: F ki·šekwi; C ki·sik; M ke·sek *sky*; O ki·šik (particle); P kišək; cf. Sh ki·šeki and ki·škwe. *ki·šekatwi II *it is (a) day* (Bl. 56, 58): F ki·šekatwi; M ke·sekat; O ki·šikat; P mno-kiškət *it is a nice day*.

92. *ki·šk- *sever, cut through*. *ki·škahamwa TI *he chops it through* (Bl. 6): F ki·škahamwa; C ki·skaham; M ke·skaham; O ki·škaqank; P kiškqək; ch. Sh nikiškha *I chop it*. *ki·škahika·sowa AI *he is chopped through or off*: M ke·skaheka·sow; O ki·škaqika·so. *ki·škahika·te·wi II *it is chopped through or off*: M ke·skaheka·tɛ·w; O ki·škaqika·te·. *ki·škahike·wa AI *he chops something through or off*: M ke·skaheke·w; O ki·škaqike· *he chops wood*. *ki·škahwe·wa TA *he cuts him through or off, cuts from him*: C ki·skahwe·w; M ke·skahɛw; O ki·škawa·t; P kiškqwat; cf. Sh nikiškhwa I *chop him*. *ki·škakana·ntamwa TI *he knocks it in two with stick or club*: M ke·skakana·htam; O ki·škakana·ntank. *ki·škame·wa TA *he bites him through or off*: C ki·skame·w; M ke·skamɛw. *ki·škantamwa TI *he bites it through or off*: F ki·škatamwa; C ki·skahtam; sO ki·škentank. *ki·ška·lowe·hwe·wa TA *he cuts off his tail*: M ke·ska·nowɛhe·w (also *he castrates him*); O ki·ška·nowe·wa·t. *ki·ška·lowe·šwe·wa TA, with same meaning as the preceding: F ki·ška·nowe·šwe·wa; C ki·ska·yo·we·swe·w; cf. Sh ki·kiška·loweqšinwa *he has his tail cut off*. *ki·ška·peθkatwi II: F ki·ška·pehkatwi *it is a cut-off rock*; O ki·ška·pikkat (meaning unknown). *ki·ška·peθka·wi II, same meaning, in C ki·ska·piska·w, O ki·ška·pikka· (meaning unknown). *ki·škešamwa TI *he cuts or slices it through or off*: F ki·škešamwa; C ki·skisam; M ke·skesam; O ki·škišank. *ki·škešamawe·wa TA *he cuts or slices it through or off for him*: C ki·skisamawe·w (*he gives him tobacco*); M ke·skesamowɛw; sO ki·škešamuwa·t. *ki·škešike·wa AI *he cuts things through*: M ke·skeseke·w (*he mows*); O ki·škišike·. *ki·škešwe·wa TA *he cuts, slices, him off, through*: F ki·škešwe·wa; C ki·skiswe·w (also *he plays him*—of a card); M ki·skesiw; sO ki·škešwa·t; P kiškšwat. *ki·škehtawake·wa AI *he is cut off at the ear, he has an ear missing*: M ke·skɛhtawakɛw; O ki·škittawak·; the attested C form has a further element at the end: ki·skihtawakaye·w. *ki·škikahamwa TI *he chops it through or off*: C ki·skikaham; M ke·skekaham; sO ki·škekaqank. *ki·škikahwe·wa

TA *he chops him through or off*: C ki·skikahwe·w; M ke·skekahɛ·w; O ki·škikawa·t. *ki·škika·te·wa AI *he has a leg cut off*: C ki·skika·te·w; M ke·skekatɛ·w. *ki·škikoθešwe·wa TA *he cuts off his nose*: F ki·škikonešwe·wa; C ki·skikote·swe·w. *ki·škikwešwe·wa TA *he cuts off his head, cuts his throat*: F ki·škikwe·šwe·wa; C ki·skikwe·swe·w. *ki·škipot- (*ki·škipo·t- in O) in the next three. *ki·škipota·wa AI (pseudo-transitive) *he saws it through*: C ki·skipota·w; M ke·skepota·w; sO ki·škepo·to·t. *ki·škipocike·wa AI *he saws things*: C ki·skipocike·w; M ke·skepocekɛw; O ki·škipo·cike·. *ki·škipocikani *saw*: C ki·skipocikan; M ke·skepocekan (also *bushel measure, bushel*); sO ki·skepo·cekan *cross-cut saw*. *ki·škiθencye·wa AI *he has had a hand or finger cut off*: C ki·skicihce·w; M ki·seknɛ·hciw. *ki·škitwiye·wa AI *his tail is cut off; he is bobtailed*: F ki·skitiye·wa; M ki·sketiyɛ·w. *ki·škwiwe·wa, -wi AI, II *he stops talking or crying; it stops sounding, the sound stops*: C ki·sko·we·w AI; O ki·škowe·; M ki·skiwɛw II. *ki·škya·wi II: F ki·škya·wi *it is steep*; C ki·ska·w *it is cut-off, edged*; in P tpəkiškya *it is cut straight down, it is vertical*.

93. *ki·t- *sore* appears in C and M, but with no identical stems; cf., in Sh, ki·t- *grind, sharp, sharpen*.

94. *ki·w- *around, turning, returning*. *ki·wanesiwa AI: M ke·wanesew *he acts crazily, runs amok*; O ki·wanisi *he performs useless acts; he plays, plays about (child)*. *ki·waškwe·wa AI is set up on the basis of O ki·waškwe· *he is dizzy*, a possibly erroneously recorded C kiyiskwe·w *he is silly* (the -y- is common in fast speech for -w- between front vowels, but the -i- of the second syllable is obscure), and because with an additional medial we obtain a more widespread stem: *ki·waškwe·pye·wa AI *he is dizzy from liquid; he is drunk*: F ki·waškwe·pye·wa; M ke·waskɛpi·w; sO ki·weškwe·pi·; cf. P kiwškwepyeqat TA *he makes him drunk*. The simpler verb is doubtless pre-Columbian; the longer one may be, or may be parallel new formations in the several languages (perhaps abetted by loan-translation). F ki·wika·pa·wa AI *he stands about* and M ke·wekapowew do not agree completely. *ki·wine·wa AI: C(E) ki·wine·w *he gives a dying spasm*(?); M ke·wenɛw *he goes about in want and misery*; P kiwne *he wallows around* (probably meaning useless aimless activity); cf. sO ki·wena·tesi *he is crazy*. *ki·wiqθe·wa AI *he flies about*: F ki·wise·wa; M ke·weqnew. *ki·wisiwa AI *he is orphaned*: M ke·wesew; O ki·wisi. *ki·wohθe·wa AI *he moves around (and returns) by foot*: F ki·yose·wa; M ke·wohnɛw; sO ki·wusse·, ki·yusse· *he hunts*; P kiws·e *he goes hunting*. Possibly *ki·wo·te·wa AI: F ki·yo·te·wa *he crawls about*; C ki·wo·te·w *he visits, goes visiting*.

*ki·wa·t- seems to be an extension of *ki·w-. *ki·wa·ci (part.): C ki·wa·c *failing, going astray* and ki·wa·ci (prenoun) *orphaned, stray*; O ki·wa·c *falsely*, negated *without fail*, and ki·wa·ci (preverb) *in error, wrongly*. *ki·wa·ciqta·wa AI *he makes a false move, slips up in his action or speech*: M ke·wa·ceqtaw; O ki·wa·citta·. *ki·wa·tawe·wa AI *he speaks wrong in a foreign language*: M ke·wa·tawɛw; O ki·wa·tawe·. *ki·wa·tesiwa AI: F ki·wa·tesiwa *he is lonely*; C ki·wa·tisiw *he is orphaned;* M ke·wa·tesew *he says about here and there*; P kiwatsə *he is lonely*.

*ki·we- *return (home)*. *ki·we·wa AI *he goes home, back*: F ki·we·wa; C ki·we·w; M ke·wɛ·w; O ki·we·; P kiwe; cf. Sh niki·we·pe *we returned*. *ki·we·pahta·wa AI *he runs back or home*: reshaped in F ki·we·pahowa; C ki·we·pahta·w; M ke·wɛ·pahtaw; sO ki·we·petto.; P kiwept·o. *ki·we·škamwa TI (formal object): O ki·we·škam *he steps homeward*; M man's name ke·wɛ·skam *Steps-it-Back*—but this may be a loan. *ki·we·weθe·wa TA *he conveys him back, takes him home*: F ki·we·wene·wa; O ki·we·wena·t; M ki·wianɛ·w. *ki·we·weta·wa AI (pseudo-transitive) *he takes it back, home*: M ki·wiata·w; sO ki·we·weto·t. Possibly C(E) ki·we·tin (man's name) *Northwind* and O ki·we·tin II *the north wind blows* and noun

the north; the north wind belong here—an II verb *ki·we·tinwi.

M proliferates formations on an extended form kiaqt-, and also on kiaqta·-; the latter is matched in O by ki·witta·-, in P by kiwt·a-. We posit *ki·wiqt(a·)-, M showing contraction. Few whole stems are reconstructable. *ki·wiqta·hθenwi II *it goes, is passed in a circle*: M kiaqta·hnen; O plural only ki·witta·ssino·n *they lie all around in a circle.* *ki·wiqta·hšimowa AI *he dances round a circle, dances all round*: M kiaqta·hsemow; O ki·witta·ššimo. *ki·wiqta·pahta·wa AI *he runs in a circle, runs around something*: O ki·witta·patto·; P kiwt·apt·o.

95. F kohkohkoho·wa (owl's call); C(E) kohkohkoho·w (a certain small owl); sO ko·kko·kkuqo· *owl*; P kokqokqo *owl.* The F and C forms agree, but reconstruction is valueless, since (as shown by O and P) the word has been reshaped, perhaps many times, by sound symbolism.

96. *kon-, *ko·n-: only with *-t or *-θ, joined without connective; M shows the long vowel, C forms from each; the other languages show only the short vowel; *swallow.* *ko(·)ntamwa TI *he swallows it*: F kotamwa; M ko·htam; sO kuntank; P ktək. *ko(·)nθe·wa TA *he swallows him*: M ko·hnɛw; O kona·t. Sh has reshaped both stems: nikotata *I taste it*; nikotama *I taste him.* C shows an added medial: kohcipayihta·w AI (pseudo-transitive) *he swallows it*, kohcipayihe·w TA *he swallows him.* *ko(·)nta·kani *throat*: F kota·kani; C ko·hta·kan; M ko·htakan; O konta·kan; cf. Sh nikota·ka *my throat.* The P TI verb is matched by an AI kɔ́ke *he swallows*; both show a w after the initial consonant (nkwɔ́cke *I swallow*), pointing to *kwan- rather than *kon-; this may well tie in with the seeming variation in vowel length.

97. **konima·w- (the *n could be *l or *θ): M konema·w *possibly, perhaps, maybe*; O konima· *maybe.*

98. *koq- *fear*: only with following *-t or *-θ, joined without connective. P suggests *-wa- or *-we- instead of *-o-; so do the few Sh cognates. *koqtamwa TI *he fears it* (Bl. 283): F kohtamwa; C kostam; M koqtam; sO kuttank; P kt·ək; Sh nikwta *I fear it.* *koqta·ciwa AI *he is afraid*: F kohta·ciwa; C kosta·ci·w (last vowel length ened presumably within C); O kotta·ci; P kt·acɔ. *koqta·mikosiwa AI *he is formidable, a good hunter*: M koqtamekosew; sO kutta·mekosi. *koqta·mikwa—II *it is formidable* (II finals do not agree in the cognates): C(N) kosta·mikwan *it is a blizzard*; sO kutta·mekwat *it is terrible; there is a blizzard.* *koqθe·wa TA *he fears him* (Bl. 44): F kose·wa; C koste·w; M koqnɛw; sO kussa·t; P ks·at (nkwɔ́s·a *I fear him*); cf. Sh nikwθa *I fear him.* *koqšihe·wa TA *he respects him*: M koqsehɛ·w; O koššiqa·t *he is bashful before him.* *koqšihta·wa AI (pseudo-transitive): M koqse·htaw *he respects it*; O koššito·t *he is bashful before it, he hates to look at it.*

99. *kos- *move camp.* *kosiwa AI *he moves camp*: M kose·w; sO kusi.

100. *kosekw- *heavy.* *kosekwanwi II 'it is heavy' (Bl. 255): M kosɛ·kwan; C kosikwan; sO kusikwan; P ksɔ́kwɔn (recorded with fortis ks·-); Sh koθekwanwi. *kosekwaθwa AI *he is heavy* (Bl. 254): C (inflection reshaped) kosikwatiw; M kosɛ·kwan; sO kusikwan; cf., with inflection reshaped, P ksɔ́kno.

Possibly the foregoing is an extension of a root *kos-: *kosa·pye·wa AI *his canoe sinks*: C(N) kosa·pe·w; O kosa·pi· (meaning doubtful).

101. *koškw- *start(le), awaken.* *koškohe·wa TA *he startles him*: C koskohe·w; O koškoqa·t. *koškome·wa TA: C koskome·w *he startles him with a call*; O koškoma·t *he wakes him up by talking or shouting.* *koškosiwa AI *he wakes up*: M kosko·sew; O koškosi.

102. *kot- *try.* *koci (part.) as preverb, *try to*: F koci (also *because, for, seeing that*); C koci; O koci. *kotaha·θkw- in C kotaha·skwa·tam TI *he uses it as a target* and M kota·ha·hkwan *target-shooting.* *kotaškine·wa AI *he tries to get inside, fit himself in*: M kota·skenɛw; O kotaškine·. *kocihe·wa TA

he tries, tests him: F kocihe·wa; O kociqa·t. *kociqta·wa AI (pseudo-transitive) *he tries, tests, it,* (ordinary) *he makes a try, tries to do something*: F kocihto·wa; C kocihta·w; M koce·qtaw; sO kucitto·, kucitto·t; cf. P kcit·əm, reshaped as TI. *kocimya·ntamwa TI *he tries its smell*: M koci·miahtam; O kocima·ntank. *kocimya·qswe·wa TA *he burns or cooks him to try the smell, tests him (tobacco) by smelling him as he burns*: M koci·miaqsiw; O kocima·sswa·t.

103. *kotak- *other* (pronominal). An. sg. *kotaka (F kotaka, C kotak, Sh kotaka). An. sg. obv. *kotakali (F kotakani, C kotaka, Sh kotakali). An. pl. *kotakaki (F kotakaki, C kotakak). An. pl. obv. *kotakahi (F kotakahi, C kotaka). In. sg. *kotaki (F kotaki, C kotak). In. pl. *kotakali (F kotakani, C kotaka). Loc. *in another place* *kotakenki (F kotakenki, C kotakihk).

104. *kotak-, *kotekw- *suffer*, the latter only in one C-O pair. *kotake·lentamwa *he suffers (from) it*: F kotake·netamwa; M kota·kɛ·nehtam. *kotakihe·wa TA *he makes him suffer*: F kotakihe·wa; Mo kta·kehɛw; O kotakiqa·t and kwatakiqa·t; P ktəkqat (nkwətkəqa *I make him suffer*). *kotakihta·wa AI (pseudo-transitive) *he makes it suffer, suffers from it,* (ordinary) *he suffers* (in O): F kotakihto·wa; M kota·kehtaw; O kotakitto·, kotakitto·t. *kotekohšinwa AI *he falls doubling or breaking a limb*: C kotikosin; O kotikoššin.

105. *kotawa·ni: C kotawa·n *fireplace*; M kota·wa·n *piece of firewood*; O kotawa·n *log of wood* (also recorded as kota·wa·n, possibly error); P ktəwan.

106. *kote(q)si, *kote(q)ši. C has a preverb kote·si of uncertain meaning (glossed as *secretly* but questioned); M has kotɛ·s *variously, in all manner of ways* and kotɛ·qs *somewhere*. Doubtless the C is cognate to one of the M particles, but it seems impossible to determine which.

107. *koθk- or *kohk- *turn over, flop over*; *-θk is guessed on the assumption that the C root *kosk- *shake* is cognate. *koθkahamwa TI *he stirs it*: F kohkahamwa; M kohka·ham *he turns or flops it over by tool*. *koθkenamwa TI *he moves it*: F kohkenamwa; M kohkɛ·nam *he turns it around or over by hand*. *koθkihθeta·wa AI (pseudo-transitive): F kohkiseto·wa *he changes its position*; M kohke·hnetaw *he flops it over*. *koθkihšime·wa TA *he changes his position*: F kohkišime·wa; M kohke·hsemɛw *he flops him over*.

108. *koθp- *inland, upland, away from the water*. For *θp see *keθp-. *koθpici (part.): F kopici *motion away from the water*; P kp·əc *on the bank of a river, shore of a lake* (meaning inaccurate?). *koθpikosiwa AI *he moves camp inland or upland*: M kohpe·kosew; O koppikosi. *koθpipahta·wa AI *he runs upland*: M kohpe·pahtaw; O koppipatto·. *koθpi·wa AI *he goes away from the water*: C(E) kospi·w; M kohpe·w; O koppi·; P kp·i. *koθpohθe·wa AI *he walks away from the water*: C kospohte·w; M kohpo·hnɛw.

109. *ko·hka·we·wa AI: F ko·hka·we·wa *he tips in canoe*; M ko·hkawɛw *he tips over, is upset*.

110. F (dimin.) ko·hko·še·ha *pig*; C ko·hko·s *pig*; O ko·kko·šš; M plural ko·hko·hsak but singular ko·hko·s; P kok·oš·. The M is marked as a loan, presumably from O. We must assume that the other forms are also loans (ultimately from French, according to Bl.), because of the clearly post-Columbian meaning; but if we did not have the extralinguistic information the agreement in shape (apart from M) would lead us to reconstruct a PCA prototype.

111. *ko·hpat- *ruined, unusable, desolate*. *ko·hpatatwi II *it is hopeless, desolate, unusable*: M ko·hpatat; O ko·ppatat. *ko·hpatesiwa AI *he is desolate, hopeless, unusable, lazy, ignorant*: M ko·hpatɛsew; O ko·ppatisi. *ko·hpate·lentamwa TI *he thinks it worthless, desolate, hopeless, unusable*: M ko·hpatɛnehtam; O ko·ppate·ntank. *ko·hpacihe·wa TA *he ruins him* (Bl. 18): C ko·hpacihe·w; M ko·hpacehɛ·w; O ko·ppaciqa·t. *ko·hpacihta·wa AI (pseudo-transitive) *he ruins it*: M ko·hpace·htaw; O ko·ppacitto·t.

112. *ko·k- *jump in water*. *ko·kahamwa

TI: M ko·kaham *he dives into it*; (pseudo-intransitive) *he dives*; O ko·kaqam *he (fish) jumps from the water*. *ko·ki·wa AI *he dives (in)*: C ko·ki·wa; M ko·ke·w; O ko·ki·; P koki; Sh niko·ki *I dive in*; F ko·ki·wa is listed but with meaning uncertain.

113. *ko·n- *snow*. *ko·nya AN *snow*: C ko·na; M ko·n (pl. ku·nyak *lumps of snow*); P kon; Sh ko·na. For sO, Bl. takes the stem to be ako·n-; the initial a- is probably a recent irregular development. *ko·niwiwa II: C ko·niwiw *it is snowy*; M ko·ne·wew *it is full of, covered with, snow*; cf. Sh ko·ni *it snows*.

114. *kwayaθkwi (part.) *properly, good, straight*: F kwayahkwi (also *you had better . . .*); C kwayask; O kuyakk. M shows kwaya·hkehnen II *it is properly placed*, which agrees through the cluster hk; for the particle M has kwaya·k *properly, in the right way*, either with some reshaping or as a loan from O, though the latter seems unlikely unless it is an old loan (a recent loan would probably leave the second vowel unlengthened, classing the word as static rather than mobile).

115. *kwaya·ci: C kwaya·c (part.) and kwaya·ci (prev.) *ready beforehand, ready*; F transcribed as kwaya·ši, doubtless an error for kwaya·ci *for good, definitely, fixedly*. (Bl.'s symbols at the time were 'c' for the spirant, 'č' for the affricate).

116. *kwa·p- *out of water*. The individual languages have other formations, but the reconstructable stems all have *-ah after the root. *kwa·pahamwa TI *he dips it out, up*: F kwa·pahamwa; C kwa·paham; M kuapaham; O kwa·paqank; Sh nikwa·pha *I dip it up, draw water from the well*. *kwa·pahikani *dipper, scoop, ladle*: F kwa·pahikani; C kwa·pahikan (AN); M kuapahekan; O kwa·paqikan; Sh kwa·phika. *kwa·pahwe·wa TA *he scoops him up*: C kwa·pahwe·w; M kuapahɛw; O kwa·pawa·t *he scoops him (fish) up by tool*; Sh nikwa·phwa *I scoop him up*.

117. *kwa·θkwa·škwayipi·hke·-, showing reduplication of a root *kwa·Hk- *jump* (?): appears in C(N) kwa·skwa·skwanipi·hke·w (the big vein from the heart—*jumper*) and O kwa·kkwa·škonipi·kke·nq *kangaroo* and (Ottawa) *grasshopper*. The reduplication may well have taken place in the separate languages, thus invalidating the fourth phoneme of our reconstruction.

118. *kwe·θk- *turn around, change direction*. *kwe·θki (part., prev.) *at the other side, changing, around, changing direction, facing about*: C kwe·ski; O kwe·kki. *kwe·θkika.-pawiwa AI *he turns as he stands*: C kwe.-skika·pawiw; O kwe·kkika·pawi. *kwe.-θkenamwa TI *he turns it about*: C kwe.-skinam; O kwe·kkinank.

Redupl. *kakwe·θk-, in F kokwe·hk- (kokwe·hka·patamwa TI *he sees it changing*, etc.) and in M kaki·hk- (kaki·hkih *all kinds*?). In M this reduplication would fall together with *kakye·θk- (from *keθk-); q.v.

119. *kwi·nkwi·hša (bird-name, presumably after its call): C with ending reshaped, kwi·hkwi·siw *whiskey-jack*; M ki·hkih (pl. ki·hki·hsak) *mud hen*; O kwi·nkwi·šš *meat hawk*. Although the agreement is exact, the reconstruction is to be doubted because of the apparent tendency for bird-names to be reshaped through sound-imitation. On the other hand, the deviations in meaning may imply that in this case no such reshaping has taken place.

120. *kwi·škwihθ- *whistle*. *kwi·škwihšiwa *he whistles* fits O kwi·škwišši; the C forms attested are kwe·skosiw and ki·skosi·w, perhaps reflecting dialect mixture or imitative alteration (one would expect C *kwi·skosiw); M ki·skihsow *he whistles a call, signal* fits except at the end. *kwi·-škwihšime·wa TA *he whistles to or for him*: M ki·skihsimɛ·w, O kwi·škwiššima·t; cf. C kwe·skosime·w.

121. *kwi·θw-, *kwi·θaw-, *ko·θaw- *be missing, absent*. *kwi·θome·wa TA *he longs for him* (Bl. 16): F kwi·nome·wa; M ki·nomɛw; sO kwi·numa·t. *kwi·θonamwa TI *I seek it in vain*: C(E) kwi·tonam; M ki·nonam. *kwi·θawa·pame·wa TA *he looks in vain to see him, fails to see him*: M ki·-

nawapamɛw; O kwi·nawa·pama·t. *kwi·θawa·pamina·kosiwa AI *he is looked for in vain, is missing*: M (inflection reshaped?) ki·nawapamena·kesew; O kwi·nawa·pamina·kosi. *kwi·θawa·pamina·kwatwi II *it is looked for in vain*: M ki·nawapamena·pwat; O kwi·nawa·pamina·kwat. *kwi·θawe·leme·wa TA *he pines for him*: C(E) kwi·tawe·yime·w; O kwi·nawe·nima·t. *kwi·θawi (prev.): C(E) kwi·tawi *impatiently*; O kwi·nawi *at a loss*. *ko·θaw- underlies the M particle ko·naw *together with something or someone else*—if this is related—and C(W) ko·tawe·yihtam TI *he misses it, longs for it*, as well as a C ko·tawe·yime·w alongside kwi·tawe·yime·w.

122. *kwi·weHsa *boy* (the cluster might be *hs or *qs, *hθ or *qθ, *hl or *ql): F (with diminutive -e·h-) kwi·yese·ha; sO (with diminutive -e·ns): kwi·wesse·ns. The reconstruction is doubtful; the word could be a loan in either direction.

123. *kya·- *jealous*. *kya·we·wa AI *he is jealous*: F k(i)ya·we·wa; M kiawɛ·w; O ka·we·. M and C have formations (none completely parallel) on an extension *kya·hkw- or *kya·nkw-; O has a number on a reduplication *kakya·(w)-.

124. *kya·- *conceal*. *kya·sowa AI *he hides himself, is hidden* (Bl. 234): F kya·-sowa; C ka·so·w; M kiasow; O ka·so. *kya·tamwa TI *he hides it*: F kya·tamwa; O ka·tank *he plants it*. *kya·ta·wa AI (pseudo-transitive) *he hides it* (Bl. 10): C ka·ta·w; M kiata·w; cf. Sh nikiya·to *I hide it*. kya·te·wi II *it is hidden* (Bl. 235): C ka·te·w; M kiatɛ·w. *kya·θe·wa TA *he hides him* (Bl. 233): C ka·te·w; M kianɛ·w; O ka·na·t; cf. Sh nikiya·la *I denied him what he did, did not admit his claim*.

125. *kyi·qs- *doff*. *kyi·qsehkamwa TI *he doffs it*: M ki·qsehkam; O ki·ssikkank; P kisk·ək. *kyi·qsehkawe·wa TA *he doffs him:* M ki·qsehkawɛ·w; O ki·ssikkawa·t.

126. *kyi·špene *if*: F ki·hpene; C ki·spin; M ki·spen; O kišpin; P kišpən.

SOME YUKIAN-PENUTIAN LEXICAL RESEMBLANCES

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0. Introduction
1. Penutian and Yukian
2. Comparative list
3. Summary chart of segments

0. The Yukian family of languages in California is made up of four members. They are: Coast Yuki (now presumably extinct), Yuki, Huchnom and Wappo. Of these Wappo was the most divergent and was entirely separated from Yuki-Huchnom to the north.

The first discussion of Yukian connections with other non-Yukian languages was Kroeber's paper in the Boas Anniversary Volume.[1] Kroeber pointed out a striking similarity between the structures of Yuki and Yokuts. He rejected the classification of Yukian as another Penutian language, however, mainly on the basis of a dearth of lexical correspondences.

Kroeber's ideas on this subject were further developed in 'Linguistic Families of California' (Dixon and Kroeber 1919: 115–118). Therein he came to the conclusion that Yukian-Penutian (and Yukian-Hokan) lexical resemblances were all either borrowed or fortuitous and that no grounds for postulating genetic relationship yet existed.

Radin, at about the same time, was of the opinion that Yukian and Penutian were closer to each other than either was to anything else which he had examined in his work on American Indian linguistic affiliations.[2]

By 1920 Yukian had been classified as an independent family, structurally very similar to California Penutian, but lacking numerous or convincing cognates with the languages of the Penutian group. Comparisons with Hokan had proved similarly unsatisfactory.

On the basis of morphological criteria, Sapir set up Yukian as a separate stock in his great Hokan-Siouan superstock.[3] An examination of Wappo grammar (Radin 1929) fails to show any convincing adherence of Wappo structure to Sapir's Hokan-Siouan criteria. His superstock classification has no residua; presumably he had a choice between putting Yukian into Hokan-Siouan or into Penutian. Hokan-Siouan was chosen.

For twenty years, the matter rested. Yukian was officially classified as an independent stock in Hokan-Siouan, in spite of the fact that Sapir had characterized his own classification as far from demonstrable in all its features.[3]

Haas[4] has pointed out that ʔúk̓ *water* in Yukian would exclude Yuki from the Hokan languages proper. On the basis of this form, she suggests the possibility of a relation to Proto Siouan-Gulf *ak^{w}ini. However, if the shift in gloss from *water* to *drink* is admissible, then a Penutian origin for ʔúk̓ is also plausible.

Swadesh extended Sapir's Hokan-Coahuiltecan to include Yukian, along with the

[1] A. L. Kroeber, The Yokuts and Yuki Languages, Boas Anniversary Volume, 64–79 (1906).

[2] Paul Radin, The Genetic Relationship of the North American Indian Languages. UCPAAE 14: 492, Berkeley 1919.

[3] Edward Sapir, Central and South American Languages, Encyclopedia Britannica, 14th edition, Volume 5, 138–141 (1929).

[4] Mary R. Haas, The Proto-Hokan-Coahuiltecan Word for Water (Papers from the Symposium on American Indian Linguistics) UCPL 10: 57–62 (1954).

Gulf languages, in a 'phylum' which he calls Hokogian.[5] This classification is effected by means of chain relationships and intersection. Swadesh made the observation that the Yukian-Gulf nexus is supported by ethnographic evidence, i.e., evidence that the Yukian-speaking people may have migrated from the vicinity of New Orleans!

1. The regular sound correspondences of the California Penutian languages have not yet been demonstrated, nor has the nature of their relationships to each other been shown. That they are genetically related is hardly to be doubted. It is important to remember, however, that conclusive demonstration in the form of regular sound correspondences is still lacking. Sets like those in the present paper, compelling though they may be, are insufficient as evidence. They may occur because of genetic unity among all the languages, or only among some of them. Many of the resemblances are undoubtedly due to diffusion; some of them may be coincidence.

When the Yukian forms are set over against the others, the problem of interpretation becomes even more serious. Some sets, excluded from the present lexicon, almost certainly demonstrate diffusion in recent times. For example, *shaman*: Patwin yommta?, Lake Miwok yomṭa, Proto-Maidun *jôm; also, Wappo yɔmmto? and Northeastern Pomo yomta. A root *yom seems to be involved here, virtually identical in form in the various languages where it appears. These languages are geographically contiguous. A root in this form is not found elsewhere in California Penutian.

Another set which is a probable result of diffusion is the word for *dog* in certain languages: Northern Wintun súkhu, Nisenan suku, Southern Sierra Miwok čukú?; also, Yuki ču·cu? (dial) and ču·žu? (dial). and Yana sūsu, Chimariko sice, Washo suku, and similarly suggestive forms in other neighboring non-Penutian languages. It is likely that this form is Penutian in origin (cf. Takelma ts·ɬixi [ʦixi], with characteristic Penutian i:u vowel alternation), but it certainly does not constitute evidence for genetic relationship between Yukian and California Penutian.

The phonological features of Yukian which are not found in California Penutian are: tones, a nasalized vowel [ɔ̃], and syllable-final consonant clusters. (The Rumsen dialect of Costanoan has such final clusters which according to Broadbent's analysis, are due to loss of vowel in the original final root syllable.) Tones are found elsewhere in 'Penutian' languages, in Takelma, for example. The nasalized [ɔ̃] presents a problem because it shows no consistent relationship to any set of Penutian vowels.

2. The thirty-two lexical sets which follow will be listed in the same order by language group throughout the list, i.e., Yukian will always come first, then Yokuts, then Wintun and so forth.[6] These sets were chosen from among eighty-odd suggestive groups because (1) they contain reflexes for all three Yukian languages or (2) they contain interesting forms for several Penutian languages or (3) they contain some

[5] Morris Swadesh, Perspectives and Problems of Amerindian Linguistics, Word 10: 323–324 (1954).

[6] The language abbreviations used in this paper are as follows: C, Costanoan; CRR, Reconstituted Rumsen; CR, Rumsen (from Henshaw); CSCl, Santa Clara Costanoan; CSCr, Santa Cruz Costanoan; CSFr, San Francisco Costanoan; CSJB, San Juan Bautista Costanoan; CSo, Soledad Costanoan; Hu, Huchnom; Klam, Klamath; Mi, Miwok; MiCS, Central Sierra Miwok; MiL, Lake Miwok; MiSac, Saclan Miwok; MiSS, Southern Sierra Miwok; Md, Maidu; MdNE, Northeastern Maidu; MdNW, Northwestern Maidu (Konkow); MdS, Southern Maidu (Nisenan); Tak, Takelma; Wa, Wappo; W, Wintun; WC, Central Wintun (Nomlaki); WN, Northern Wintun (Wintu); WS, Southern Wintun (Patwin); Y, Yokuts; YChaw, Chawchila Yokuts; YChoy, Choynimni Yokuts; YDumn, Dumna Yokuts; YGash, Gashowu Yokuts; YKing, King's River Yokuts; YPC, Poso Creek Yokuts; YTK, Tule-Kaweah Yokuts; YTol, Toltichi Yokuts; YVal, Valley Yokuts; YWik, Wikchamni Yokuts; YY, Yawelmani Yokuts; Yu, Yuki.

problematical Penutian form as, for example, the Maidu word má, *hand*. Some Takelma and Klamath forms were included, even though these languages do not belong to the California Penutian group so far as anyone knows. The Yukian data are based almost entirely on field notes recently set down by Sydney M. Lamb. None of the forms taken from Lamb's notebooks are written phonemically. Coast Yuki, now presumably extinct, is left out of account.

to bite: Yu šš̋š,[7] Hu šš̋š; YY ʔasas.

black: Yu šíʔik, Hu šék, Wa có·wi; WN ċiló·w-; MiL siwi·siwi; MdNE síwsiw.

blue, green: Yu sí·k (*blue*), Hu sé·k (*blue*), Wa šíkȧtis (*blue, green*); YY ċiyugay (*green*); WN ċaru·q- (*green*), WC tucu·ka (*green*), WS sek (*green*); CR súksuks (*green*), CSo čukṭúk (*blue*).

bone: Yu ki·t, Hu keht, Wa ċítti; YY ċiy; MiL kíccaw (*blood*), MiSS kyčýč.[8]

coyote: Yu hû·lko?i, Wa hayu (*dog*, but cf. Barrett p. 62 for Pomo *dog*); YY kaẏiw, YTol xaiu; MiL ʔolé, MiSS ʔahéli; MdNE ʔolél, MdNW héno,[9] MdS ʔolé.

to cut: Yu ʔití, Wa ketˢɛ; YY kiṭi; Klam qd-.

drink, water (I): Yu mî· (*drink*), Hu mê·ʔ (*drink*), Wa mê·ʔ (*water*); WN mé·m (*water*), WC mem (*water*), WS me·m (*water*); MdNE mo (*drink*) and môm (*water*), MdNW mó· (*drink*), MdS mo· (*drink*).

drink, water (II): Yu ʔû·k (*water*), Hu ʔúk̋ (*water*), Wa ʔuki (*drink*); YY ʔugun (*drink*); MiL ʔussu (*drink*), MiSS ʔuhu (*drink*); CR uk (*drink*); Tak ukʷ (*drink*).

eat: Wa paʔ; WN ba·, WS ba; MdNE pe, MdNW pé·, MdS pe·; Klam p̣á.

egg: Yu hə̋·, Hu hə̄·; YY hon; WN łu· (cf. *house* and *snot*); MiSS hoŋuʔ.

feather: Yu kóp, Hu kehs, Wa kapeʔ; YY xa·pal; WN k̆álaq; MiSS halaʔ; CRR ʂepsˢ[10]; Klam hlas.

finger, fingernail (I): Yu mitə̋s (*finger*), Wa meʔčuš (*fingernail*); MiL ti· (*fingernail*), MiSS tissyj (*fingernail*); CRR tuṣ, (*fingernail*).

finger, fingernail (II): Yu mik̋ə̋s (*little finger*), Hu k̆us (*fingernail*), Wa meʔčuš (*fingernail*)[11]; YY xe·six (*fingernail*), YYaw kešik (*fingernail*).

finger, to point: Yu mikuppul (*index finger*) and kup (*to point*), Hu kúp (*to point*); YY xappal (*finger*); WN q̇ahá- (*finger*), WS k̆opom (*finger*); MiL k̆upum (*finger*); MdNE čípby (*digit*).

foot: Yu mipə̋·n, Hu mipə̋n, Wa pe; WN ma-, WS may; MdNE pâj; Klam péj.

forehead, eye: Yu hûnt (*forehead*), Hu hûnč (*forehead*), Wa húċċi (*eye*); WS si·n (*forehead*); MiL ṣut (*eye*), MiSac sette (*eye*), MiCS šúntų (*eye*), MiSS hynty? (*eye*); MdNE sýn- (*forehead*), MdNW sýn- (*forehead*).

hair: Yu ɬól, Hu ɬól, Wa ɬôl; YY ʔoṭ̨ow (also *head*); WN tómoy, WC tomor, WS doł (*head*); MiSS tolkóh (*ear*); CSCr uli, CRR uṭ, CSo wuruh.

hand: Yu mip̣at, Hu mipáʔ, Wa meʔ; YGash puṭo·n, YDumn p̣onoš, YTol p̣oñox; MdNE má, MdNW má.

house: Yu hə̋·n, Hu hə̋n; YY ṭiʔ[12]; WN łu·t; MdNE -hý, MdNW hý-, MdS hy; Klam lač.

[7] Lamb's field notes on Yu, Hu and Wa from which the forms in this list were taken have been normalized but not phonemicized. His diacritics indicate tones. An acute accent is high tone, a circumflex is falling tone and no mark is low tone.

[8] In all of the MiSS and Md forms, the symbol /y/ is used for the high central vowel phoneme. In these same languages /j/ is used for the value of [y].

[9] Front-back vowel alternations are well attested in California Penutian languages, both within single languages and between languages. Examples are: *coyote*; *drink, water* (I); *finger, fingernail* (I); *finger, to point*; *forehead, eye*; *house*; *snot*. Other examples are: MdNE kylé *woman* and MdNE *kylóknono women*; MdS ʔoko *day* and MdNE ʔêk *day*. This process is further shown by the Tak word for *dog* in the set quoted in the introduction to the present paper.*

[10] In many instances, Broadbent was not able to reconstitute a precise sibilant phoneme from the available evidence. I have symbolized such cases with s in this lexicon; i.e., s = s, š or ṣ.

[11] This Wa form has been included in both sets for *finger* or *fingernail*.

[12] There is good evidence for YY ṭ:Md h:W ɬ in initial position; examples are: *house* and *snot* in the present list; YY ṭipin:Md hipin *above*; YY ṭinik:Md hí-ky:W(S) ɬinik, *nose*; YY ṭiti:Md hyċý *to have sexual intercourse*.

to hunt: Wa hɔlɛ; YY hoy̆le·; MiSS halkí; MdNE hún.

man, Indian: Yu ʔa·ṭát, Hu ʔahṭō; YTK ṭaaṭi, YPC ṭaat; MiL taiʰ.

nose, mouth: Wa šíma (*nose*); YY samaʔ (*mouth*); WN sóno (*nose*); MdNE sîm (*mouth*), MdNW símy· (*nose*); Tak ṣin (*nose*); Klam sóm (*mouth*).

rock: Yu lîl, Hu lîl, Wa lêl; YY silel, YGash šilil;

snot[12]: Yu hontil (*nose*), Hu hą̄nṫúʔ, Wa šíṫɛ; YY ṭoṅoṗ; WN ƚíniq; MiL ƚunta; MdNE hûn; Tak xin; Klam sni·gs.

sun, eye: Yu hul (*eye*), Hu hul (*eye*), Wa hîn (*sun*); MiL hi· (*sun*); MdNE hîn (*eye*), MdNW hín (*eye*); CRR xin (*eye*).

this, that: Yu ƙî· (*that*), Hu keʔ (*that*), Wa hepi (*this*); YY ke· (*this*), YChaw he· (*this*), YWik xe· (*this*); Klam ge· (*this*).

thou: Yu míʔ, Hu méʔ, Wa mî·; Y (all dialects) maʔ; WN mí, WC miʔa, WS mi; MiSS miʔ; Md (all dialects) mí; CRR me, CSJB men; Tak má; Klam m-.

tongue: Yu námlát, Hu namláʔaN, Wa náʔaⁱće; YY talxaṭ, YTul aladis; WN tahał, WS tahal; CRR laš, CSCl lasé.

tooth: Yu sa̋wak, Hu sa̋hk, Wa šâh; MiCS šawaʔ (*rock*), MiSS hawaʔ (*rock*); MdNE ćawá (*jaw*) and ćawáj (*to chew*), MdNW ća·wá.

urine: Wa tˢúpic; YY ćuyo; WN ćú·n; MdNE ćućú.

white: Yu čál, Hu ćál, Wa ƙáyʔil; YVal djolol, YKing tcoyoyi; WN xá·yi; MdNE dáldàl.

woman: Yu músp, Hu mús, Wa čaġis (*girl*); YY moƙiy̆, YChuk muƙela; WN p̓ó·qta; MiL kulla, MiSac melaca (c = [k] ʔ)[13]; MdNE kylé, MdNW kýle, MdS kyle; CR mukur-.

3. Chart I summarizes the lexicon by segments. The California Penutian entries are reduced to a single entry for each of the five language groups. The environments listed to the left are those for the first Yukian language.[14]

[13] This word is given by Beeler in de la Cuesta's original orthography. If c is [k], then there may be metathesis: melaka < mekala. Such a process is attested elsewhere in California Penutian: MdNE biéí:MdNW éíbi *claw*.

[14] The symbols for environments have the following meanings: + = word boundary, – = position of the segment under consideration, V = vowel, C = consonant, 'all' = all environments. A hyphen is used in the chart whenever the pertinent form lacks a segmental correspondent in that position.

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CHART I

	Yu	Yukian Hu	Wa	Y	W	Mi	Md	C	Tak	Klam	gloss
+_	m	m	m		m		m				water, drink
	m	m	m	m	m	m	m	m	m	m	thou
	m	m		m	ṗ	m					woman
			m				m				hand
V_V			m	m	n		m		n	m	nose, mouth
V_C	n	n	—		n	n	n	n			forehead, eye
		n	—	ṅ	n	n	n		n	n	snot
V_+	—	—		n		ŋ					egg
			n				n	n			sun, eye
_+	l	l	l	w	ł, r	l		l			hair
	l	l	l	l				—			rock
	l	l	y	l, y	y		l				white
	l̓	—	—	l	—	—	—				finger, to point
	l					l	l, n				coyote
V_V			l	l		l					to hunt
+_			p		b		p			ṗ	to eat
	p	p	p		m		p				foot
	ṗ	p		p, ṗ							hand
V_	p	p	p	p	h, p	p	p				finger, to point
	p	—	p	p	—	—		p		—	feather
+_	t	č				t		t			finger, nail
	ť	ť	ť	ṯ	t	t		ṯ			hair
	ť	ṯ		ṯ		t					man, Indian
C_V		ť	ť	—		t	—			—	snot
V_+	t	t	tt	—		cc		č			bone
	t	—		ṯ		h					man, Indian
	t	ʔ		ṯ							hand
	t	ʔ	ć	ṯ		tt		š, s			tongue
V_V	t		tˢ	ṯ						d	to cut
C_+	t	č	ć		—	t	d	—			forehead
+_	č	č	ǩ	č	x		d				white
			tˢ	ć	ć		ć				urine
	k	k		x	q̓, ǩ	ǩ	ć				finger, to point
	k	k	k	x	k̓	h		g		h	feather
	ǩ	ǩ	ć	ć		k		č			bone
	ǩ	k	h	k, h, x						g	this, that
	ǩ		h	k, x̌							coyote, dog
	ʔ		ǩ	ǩ						q	cut
	ǩ	k	č	x, k							finger, nail
_+	k	ǩ	ǩ	g	q, k			k			blue, green
	k	ǩ	k	g		s, h		k		kʷ	drink, water II
	k	ǩ	—		w	w	w				black
	k	hk	h			ʔ	—				tooth
	—	ǩ	g̓	ǩ		k	k				woman

CHART I—*Continued*

	Yu	Yukian Hu	Wa	Y	W	Mi	Md	C	Tak	Klam	gloss
+—	š	š		s							to bite
			š	s	s		s		ş	s	nose, mouth
		h	š	ţ	ł	ł	h		x	s	snot
	s	s	š		s	š, h	ć				tooth
—+	s	s	š	s, š							finger, nail II
	s		š			ss		ş			finger, nail I
	š	š		s							bite
+—											
+—	h	h	h		s	ş, h	s				forehead, eye
	h	h		h	ł	h					egg
			h			h	h	x			sun, eye
			h	h		h					to hunt
	h	h	ẗ	ţ	ł		h			l	house
	h					ʔ, h	ʔ, h				coyote
all	i	i	e	e, i, u				e			rock
	i		e	i							to cut
	i		e	e						e	this, that
	i	e	e		e·		o·				drink, water I
	i	e	i·	a	i	i	i	e	a		thou
	i·	e·	i	iyu	u·			u			blue, green
	i·	e	i	iy		i, y		a			bone
	i	—	i		i	i·	—				black
	i	e	—		i	i	i				black
			e	e·		—					to hunt
	—	—	i	a	o		i		i	o	nose, mouth
	—	—	i	i̤		u	y				woman
			i			i	i	i			sun, eye
all	u	u	u		i·	u, y	y	i			forehead, eye
	u					o, e	o, e				coyote
	u	u	—	o, u			e				woman
		u	e	o	i	a					snot
	u	u		a	a, o	u	i				finger, to point
	u	—		a	a, o	u	y				finger, to point
			u	u	u		u				urine
	u	u	u	u		u		u	u		drink, water II
	o	o	o	o	o	o		—			hair
	o		a	a							coyote, dog
	o	e	a	a	a	a		e		a	feather
			o	o		a					to hunt
	ɔ̃	ɔ̃		a							to bite
	ɔ̃	ɔ̃		i	u·		y			a	house
	ɔ̃	ɔ̃		o	u·	o					egg
	ɔ̃	ɔ̃	e		a		aj			ej	foot
	o	ɔ̃	i	o	i	u	u		i	i·	snot
	a	a	a	a	a			a			tongue
	—	—	a	ay	a			—			blue, green
	a	a		u			a				hand
	a	—	a			a	a				tooth
	a	a	a	o	a·		a				white
	a	a		aa		ai					man, Indian
			a	a	o		y				nose, mouth
			a		a		e			a	to eat

RUMSEN I: METHODS OF RECONSTITUTION

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1. Introduction
2. The status of Costanoan
3. Materials for the study of Rumsen
4. Methods of reconstitution
5. Proposed method of presentation

1. In various parts of the world, linguistic researchers face the problem that, although there are no longer any living speakers of a given language, old vocabulary lists or texts collected by travellers, missionaries and traders are available. The usefulness of these documents varies widely, depending on the training and linguistic background of the collectors. They may be far from the modern standards of phonetic transcription, and phonemicization, if any, is on a strictly intuitive basis. As they stand, such records are quite inadequate for the purposes of the modern linguist. There would be no point in using them if any living speakers existed. But when all speakers are gone, such documents contain the only information about the particular language that we are ever going to have. We must either devise methods for using them, or remain forever in ignorance.

Such is the situation with Rumsen, the southernmost language of the Costanoan group of the Central California coast. Considerable searching has not brought to light a single living speaker, although there are many descendants of these Indians. It is doubtful whether there are any surviving speakers of any Costanoan language. But we do have several old vocabulary lists, and any knowledge of the language must be gleaned from these. I have worked out a method for extracting from this material as much and as reliable information as it will yield.[1]

The problem is essentially a historiographic one. The sources are the historian's kind: documents. Just as the historian tries to reconstruct an event from contemporary written accounts, so the linguist must attempt to put back together his special kind of event, the spoken word, from the contemporary writings. His methods must therefore be based on sound historiographic principles. The two most applicable are (1) the use of primary sources and (2) the detailed comparison of different sources. The method described here is based on these principles. Since comparison is an essential part of the method, it can only be used if there are two or more vocabularies which partially duplicate each other, preferably collected by different individuals. The method does not apply to a single list.

2. The Costanoan languages, a branch of California Penutian, were spoken on the coast of California from Contra Costa county on San Francisco Bay to northern Monterey county. As a result of early and heavy Spanish mission activity in this area, little is known of the pre-contact distribution of dialects, or even of the nature, size or location of aboriginal social groups. Almost all of the available linguistic and ethnographic material was collected on the basis of the Spanish period social groups, the missions. There were seven of these in Costanoan territory: San Francisco de Asís, Santa Clara de Asís, San Jose de Guadalupe, San Juan Bautista, Santa

[1] Grateful thanks are due to Mary R. Haas for helpful suggestions and stimulating criticism, and also for providing access to Kroeber's notes. This project was undertaken under her direction in Linguistics 298 at the University of California, Berkeley. My gratitude also goes to Robert F. Heizer for permitting me to use the Merriam material.

Cruz, Nuestra Senora de la Soledad, and San Carlos Borromeo (Carmel).

The linguistic material recorded at each mission is usually taken to represent a separate dialect. Each is named after the mission at which it was collected, except for San Juan and San Carlos. These two are often referred to respectively as Mutsun and Rumsen (or Runsien), the names of important Indian villages near the missions. Kroeber[2] classified these dialects into two groups: (1) Northern, comprising San Francisco, Santa Clara, San Jose and Mutsun, and (2) Southern, consisting of Santa Cruz, Soledad, and Rumsen.

Besides the mission dialects, Beeler[3] speaks of two 'village' dialects, Juichun (possibly north of Richmond) and Karkin (probably near Carquinez Straits). These are based on recently-discovered manuscript vocabularies with village provenience. The first he regards as part of East Bay Costanoan, in which he also includes material from San Lorenzo and Mission San Jose. The second is a distinct and divergent dialect.

Published material on Costanoan consists of vocabularies,[4] studies of its genetic affiliations,[5] one grammar,[6] and one grammatical sketch.[7] J. P. Harrington is reputed to have done extensive work with Costanoan speakers, but it has not appeared in print.

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knowledge, 2.494–506 (Philadelphia: J. B. Lippincott and Co., 1860).

John Wesley Powell, Appendix: linguistics, *in* Stephen Powers, Tribes of California, U.S. Geographical and Geological Survey of the Rocky Mountain Region Contributions to North American Ethnology, 3.538–549 (1877).

A. L. Kroeber, The Chumash and Costanoan languages, UCPAAE 9.243–248 (1910).

R. F. Heizer, *ed.*, California Indian linguistic records: the Mission Indian vocabularies of Alphonse Pinart, UC-AR 15.7–35 (1952). California Indian linguistic records: the Mission Indian vocabularies of H. W. Henshaw, UC-AR 15.160–186 (1955).

[5] Robert Gordon Latham, On the languages of New California, Proceedings of the Philological Society for 1852 and 1853, 4.78 (London, 1853). On the languages of northern, western, and central America, Transactions of the Philological Society, 1858, 83–84 (London, 1858). Elements of comparative philology, 416–417 (London: Walton and Maberly, 1862).

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John Wesley Powell, Appendix: linguistics, *in* Stephen Powers, Tribes of California, U.S. Geographical and Geological Survey of the Rocky Mountain Region Contributions to North American Ethnology, 3.536–537 (1877). Indian linguistic families of America north of Mexico, BAE-AR 7.70–71 (1891).

A. L. Kroeber, The languages of the coast of California south of San Francisco, UCPAAE 2.69, 80 (1904). The Chumash and Costanoan languages, UCPAAE 9.259–262 (1910).

Roland B. Dixon and A. L. Kroeber, Linguistic families of California, UCPAAE 16.48–102 (1916).

[6] Felipe Arroyo de la Cuesta, Grammar of the Mutsun language, Shea's Library of American Linguistics, vol. 4 (New York, 1861). A vocabulary or phrase book of the Mutsun language, Shea's Library of American Linguistics, vol. 8 (New York, 1862).

J. Alden Mason, The Mutsun dialect of Costanoan based on the vocabulary of de la Cuesta, UCPAAE 11.399–472 (1916).

[7] A. L. Kroeber, The languages of the coast of California south of San Francisco, UCPAAE 2.69–80.

[2] A. L. Kroeber, The Chumash and Costanoan languages, UCPAAE 9.240–241 (1910).

[3] M. S. Beeler, Saclan, IJAL 21.202 (1955).

[4] Jean François Galaup de Lapérouse, Voyage de La Pérouse autour du monde, 2.288–292 (Paris: l'Imprimerie de la République, 1797).

José Espinosa y Tello, Relación del viage hecho por las goletas *Sutil y Mexicana* . . ., 172–173 (Madred: la Imprenta Real, 1802).

Eugène Duflot de Mofras, Exploration du territoire de l'Oregon, des Californies, et de la Mer Vermeille . . ., 2.392, 401 (Paris: Libraire de la Société de Géographie, 1844).

Albert Gallatin, Hale's Indians of Northwest America, and vocabularies of North America, Transactions of the American Ethnological Society 2.126–127 (1848).

Alexander S. Taylor, California notes: Indianology of California, no. 4, Santa Cruz County Indians, The California Farmer 13.58 (April 5, 1860). California notes: Indianology of California, No. 5, San Carlos de Carmelo and Soledad Indians, etc., The California Farmer 13.66 (April 20, 1860).

Henry Rowe Schoolcraft, Archives of aboriginal

In addition, several manuscript vocabularies exist.

3. The material available on the Rumsen language consists of nine vocabulary lists collected between 1786 and 1933. The order of reliability of the transcriptions, from most to least, is roughly as follows: Kroeber, Henshaw, Pinart, Merriam, Espinosa, Lapérouse, Taylor.[8]

Where possible, I have used the original manuscripts (or photographic copies). In doing this, I have invoked a basic principle of sound historiography: the importance of using early, primary sources. The assumptions behind this are (1) that the sources closest in time to the event are the most reliable and (2) that copying produces errors. To the historian, this means that he should rely more on a diary-entry written on the date of the event than on a letter written several days later or a book based on the diary. To the linguistic historiographer, the original manuscript field notes, written as the event occurred, are the preferred source.

This general principle has proved its usefulness in several ways. In the first place, the manuscript provided many small clues to the meaning of the transcription that were not to be found in the published version, in the form of crossings-out and second thoughts on the part of the recorder. For instance, when sh is crossed out in favor of c, one can be quite certain that this writer's c means [š]. Secondly, the publications cannot always be relied upon to represent even the collector's final decision with accuracy, let alone the minutiae of corrections. Forms were sometimes deliberately changed, either to represent second thoughts after leaving the field or to correspond to some standard orthography. And even without deliberate changes, there is always the problem of copyist's error, to which linguistic material is disastrously sensitive. The researcher himself is the best person by far to do the actual copying, because familiarity with the language in question makes it easier to read manuscript renditions.

For all except the Lapérouse and Espinosa lists, the manuscripts or photocopies of them were available at the University of California, and have therefore been used. In the case of Lapérouse and Espinosa, first editions have been used as the next best substitute for the manuscripts.

4. The available material, although substantial, is not in a form which is subject to modern methods of analysis. First one must try to find out what the forms actually sounded like. The term RECONSTITUTION is suggested for this process. It involves a reconstruction, in the general, non-linguistic sense, of what the recorders heard, by com-

[8] Jean François Galaup de Lapérouse, Voyage de La Pérouse autour du monde, 2.288–292 (Paris: l'Imprimerie de la République, 1797).

José Espinosa y Tello, Relacion del viage hecho por las goletas *Sutil* y *Mexicana* . . ., 172–173 (Madred: la Imprenta Real, 1802).

Alexander S. Taylor, ms., San Carlos de Carmelo and Soledad Indians, etc. Location: Bancroft Library, University of California, Berkeley, Warren Papers, C-B 418 carton II.

Alphonse Louis Pinart, ms. 1, Vocabulario del idioma Rumsen ó de los indios del Carmel, Monterey 27 de Julio de 1878. Location: Bancroft Library, University of California, Berkeley, C-C 62: 4. Ms. 2, Idioma Ex'xeien, dialecto del idioma Esselen [sic; mostly Rumsen], Monterey 27 de Julio 1878. Location: Bancroft Library, University of California, Berkeley, C-C 62–3.

H. W. Henshaw, ms., Vocabulary of Rumsien. Location: Bureau of American Ethnology, ms. no. 647. Photocopy belonging to the Anthropology Library, University of California, Berkeley, uncatalogued, used here.

C. Hart Merriam, ms. 1, Vocabularies of North American Indians: Olhonean. Tribe: Kah'-koon or Room'-se-en, Sur-Carmel region, Calif. Location: the C. Hart Merriam Files, Department of Anthropology, University of California, Berkeley. Ms. 2, U. S. Department of Agriculture, Biological Survey . . . Field Check Lists . . . Olhonean: Room'-se-en, Kah'-koon. Location: the C. Hart Merriam Files, Department of Anthropology, University of California, Berkeley.

A. L. Kroeber, ms., [Field notes on Rumsen]. Location: in the possession of Mary R. Haas.

paring their different versions of the same form. The units of reconstitution are not phonemes in the strictest sense; this point has recently been discussed by Granberry.[9] New terms are therefore needed to avoid confusion. SONE and SONEME are used here. A sone is a reconstituted phone. It exists only on paper, and at best it can only be an approximation of the phone. A sonetic transcription is a re-interpretation of an antiquated phonetic one, to be differentiated from an immediate recording of an utterance. No distinctions finer than those of the original transcribers can be made, and hence some of the details of allophony are lost. Sonemics, of course, involves applying the principles of phonemics to sones.

The methods of reconstitution used for Rumsen can best be described in terms of a series of steps, as follows:

1) Copying and filing. A complete and fully documented copy of each manuscript was made, in the form of slips for the sake of convenience. Careful note was taken of all corrections and marginal comments. The slips were filed according to the English gloss, in order to bring together different recordings of the same form.

2) Transliteration. As far as possible, it was determined what each form ought to mean in terms of modern phonetics. Any available clues as to the particular recorder's phonetic system were utilized here. In some cases, a more or less standardized system was given by the recorder, or could be inferred. For instance, Merriam used his own system, which he had printed on the schedules he used. Henshaw used the Powell Survey schedules, and therefore presumably wrote in Powell's phonetics.[10] In other cases, the only information available was the nationality and probable knowledge of languages of each recorder, plus inferences made from corrections. For example, Pinart was French, but since he gives Spanish glosses, he must have known Spanish. Therefore, when he crosses out i in favor of x, it is clear that he means [x] or something close to it. It should be remarked that when this step involved keeping an elaborate system in mind, it was done concurrently with step 1), while a single transcriber's material was being handled *en bloc*.

3) Comparison. Different transcribers' versions of the same word were carefully compared, sound by sound. As a basic rule, I decided to reconstitute first only those forms recorded by two or more persons. Forms recorded by only one individual, no matter how many times, were left until everything possible had been learned about the transcription methods of that recorder.

4) Reconstitution. The actual step of reformulating the item was done in two substeps: a) Whatever the different recordings had in common was set down as reasonably secure. b) The gaps left were filled in by an examination and evaluation of the differences between recordings. The problem was to decide what sound in the original would best explain the variations. One must take into account the psychology of the relatively naïve recorder of an unknown language, and the phonology of the recorder's native language. For instance, if French or Spanish-speaking transcribers record a p in a given form, while Taylor or Kroeber gives a b, it is probable that the original sound was a fairly lenis unaspirated [p], since this sound is often heard by the English ear as b. Accordingly, [p] would be reconstituted. In some cases, variations between recorders seemed quite random, and one recorder would vary between different writings of the same word, apparently unable to decide between two sounds, such as [s] and [š]. The original was probably some-

[9] Julian Granberry, Timucua I: prosodics and phonemics of the Mocama dialect, IJAL 22.100–102 (1956).

[10] John Wesley Powell, Introduction to the study of Indian languages, with words and sentences to be collected, second edition—with charts, 1–16 (Washington: Smithsonian Institution, Bureau of Ethnology).

where between the two, or partook of qualities of both. In the case of s-š variation, [ṣ] was reconstituted. Other variations were analyzed by similar methods. The process is not a simple mechanical one; each case must be carefully considered and decided on its own merits.

5) Refiling and indexing. A new slip was made out for each reconstitution and refiled according to the Indian, together with the items from which the reconstitution was made. Another slip was made out and filed separately according to the gloss, to build up an English index to the reconstitutions. Unreconstituted items were left in the original file. This was checked through once, to locate stray recordings that had been filed away from the main block owing to variant glosses.

6) Sonemicization. An inventory was made of all reconstituted sones, and their positions of occurrence were tabulated. The general pattern of the sonemic system was then worked out. It was possible to eliminate a few wild guesses, because they postulated unique or rare occurrences of sones that did not fit the pattern. A possible series of glottalized stops was abandoned for this reason. The sonemic significance of a distinction made consistently only by Kroeber (t and ṭ) was confirmed by distribution. Analysis at this stage made it possible to set up a pair of spirants, /s/ and /ṣ/, that had not been clearly distinguished by any recorder. It was found that in a number of forms, some of them exceptionally well-attested, s had been recorded consistently. In another large group, recordings varied between s and š or its equivalent, often within the writings of one individual. /ṣ/ was reconstituted in these cases. š or its equivalent was recorded consistently in very few cases, and never by more than three writers. These cases can be regarded as randomly consistent recordings of /ṣ/. With the aid of reasoning such as this, the following sonemic system was established:

p	t	ṭ	k	?
	s	ṣ	h	x
	c	č		
m	n	l r		
w	y			

i		u
e	a	o

With the establishment of this system, the writing of reconstitutions was regularized.

7) Reconstitution and analysis of phrases. The complexities of this process need not be described in full here. Basically, the method is the same as in the case of isolated words. Forms are reconstituted by means of comparison, but often one must compare forms of similar structure rather than identical items. For example, in order to reconstitute *my*, it may be necessary to compare *my uncle* with *my bow*. The task is complicated by the fact that lexical forms and structural patterns must be reconstituted at the same time, and both kinds of information filed and cross-referenced.

Rumsen is an unusually favorable language for reconstitution. The phonemic system, as far as the sonemes given above reflect it, was a simple one that could be written with familiar symbols in most cases. But it must be remembered that the sonemes are only a partial reflection of the phonemes, because it is impossible to cut any finer than the original recorders did. Intuitively, they seem to have written more or less phonemically. They did almost all of the lumping that could be done. They did not record allophonic detail, and hence most of it is lost. The danger is that they lumped too much, that they wrote separate phonemes with one symbol because they were hearing in terms of the phonemes of European languages. However, when a sound was different from any European one, it gave rise to variation in the recordings, because the writers did not know how to represent it. This sometimes makes it possible to split where they have lumped. The recorders

would not have missed any Rumsen phoneme that was similar to a phoneme in any language that they knew. I doubt that there were any phonemes in Rumsen that are not represented in the sonemic list.

5. When this material is published, it will be important to present with each reconstitution all the evidence for its suggested form. This consists of, first, what is known concerning each recorder's phonetic system. Secondly, it will be necessary to give all recordings of each form exactly as written, including indications of all crossings-out, inserts, and other corrections, since this evidence has been found to be significant. There are two main reasons for doing this, one legal and one scholarly. The legal reason is that agreements concerning the publication of the Merriam material stipulate that it must be printed without change,[11] and if this must be done with one it should be done with all. However, the scholarly reason would be sufficient even if these agreements did not exist. This is that all information leading to a particular reconstitution should be presented with it, so that any scholar who wished to check it might have the material with which to do so conveniently at hand. The details of the original recordings are the proof for the reconstitutions.

[11] C. Hart Merriam, Studies of California Indians, xi (Berkeley and Los Angeles: University of California Press, 1955).

HIGH-LAYERED NUMERALS IN CHOL (MAYAN)

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0. Introduction
1. Structure of Chol numeral system
2. Brief comparison with Chontal classifier system

0. The system of numeral classifiers in the Chontal of Tabasco was described in a recent article by Kathryn C. Keller.[1] A similar system is found in the related Chol[2] language, which is spoken by the southern neighbors of the Chontal Indians. There is a striking difference between the Chontal and Chol numeral systems, however, in that Chol has a well developed numeral system which is basically vigesimal with a further subdivision in decimal form, whereas numbers beyond six do not occur in Chontal.[3] This presentation is designed to described the high-layered numeral system in Chol and to show a few of the similarities between the Chol and Chontal systems.

1. The structure of the Chol numeral system is marked by four sets of suffixes. The sets occur in multiples of 20. One unit of the second set equals 20 units of the first set. One unit of the third set is the square of one unit of the second set. One unit of the fourth set is 20 times one unit of the third set or the cube of one unit of the second set.

Set I 1–19 quantifier + any classifier from a long list parallel to that of Chontal.

Set II 20– quantifier + -k'al.

Set III 400– quantifier + -bahk'.

Set IV 8,000– quantifier + -pik.

In Set I, classifiers obligatorily occur with the numbers from 1 to 19 inclusive. Quantifiers occur in the numbers from 1 to 10 inclusive. Numbers from 11 to 19 are formed by prefixing the desired quantifier to the root for 10. Thus, in the list which follows, the number hunluhump'ehl[4] *11* consists of the quantifier hun- *1* followed by luhump'ehl *10*.

It will be noted that the numeral 12 is diverse in form from the other numerals. At least two interpretations are possible. One is to assume some form of metathesis and vowel change: lahčəmp'ehl < *ča?luhump'ehl. The morpheme lah- would then correspond to luhu- and the morpheme čə- to ca?-. An alternate interpretation is to assume that it contains the quantifier čən- *4* instead of ča?- *2* as it would be expected. In this case lah- would be a unique morpheme of unidentified meaning.

Alternate forms occur for the numerals from 16 to 19. The second forms cited in each case are more frequently heard than the basic forms. Thus, luhump'ehl yik'ot wukp'ehl *10 with 7* is more commonly used for 17 than wukluhump'ehl *quantifier 7* followed by *10*.

In the following list the general or nonspecific classifier -p'ehl is used:

1 hump'ehl
2 ča?p'ehl

[1] IJAL 21.258–275 (1955).

[2] Chol is spoken by approximately 30,000 Indians near Palenque in northern Chiapas, Mexico. The data presented were collected in the Tumbalá district under the auspices of the Summer Institute of Linguistics during field trips between 1946 and 1955. I am indebted to my wife, Evelyn W. Aulie, who introduced me to the Chol Indians, and to my colleagues, Kenneth L. Pike, Viola Waterhouse and John Crawford, who made helpful suggestions and criticisms with regard to this paper.

[3] Keller, op. cit., p. 259.

[4] With the exclusion of d and g, Chol phonemes are essentially the same as Chontal, namely, p, p', t, t', k, k', ?, c, c', č, č', s, š, h, b, m, n, l, r, w, y, i, e, a, ə, o, u. The original phonemic analysis was done by Evelyn W. Aulie.

3 ušp'ehl
4 čəmp'ehl
5 ho?p'ehl
6 wəkp'ehl
7 wukp'ehl
8 wašəkp'ehl
9 bolomp'ehl
10 luhump'ehl
11 hunluhump'ehl
12 lahčəmp'ehl
13 ušluhump'ehl
14 čənluhump'ehl
15 ho?luhump'ehl
16 wəkluhump'ehl, or luhump'ehl yik'ot wəkp'ehl *10 with 6*
17 wukluhump'ehl, or luhump'ehl yik'ot wukp'ehl *10 with 7*
18 wašəkluhump'ehl, or luhump'ehl yik'ot wašəkp'ehl *10 with 8*
19 bolonluhump'ehl, or luhump'ehl yik'ot bolomp'ehl *10 with 9*

In Set II, the suffix -k'al occurs with numbers from 20 and above. The following are representative examples:

20 hunk'al *one-20-unit*
21 hunk'al yik'ot hump'ehl *one-20-unit with 1*, or hump'ehl i ča?k'al *1 (beyond 20) towards two-20-units*
25 hunk'al yik'ot ho?p'ehl *20 with 5*, or ho?p'ehl i ca?k'al *5 (beyond 20) towards two-20-units*
30 luhump'ehl i ča?k'al *10 (beyond 20) towards two-20-units*
40 ča?k'al *two-20-units*
60 ušk'al *three-20-units*
80 čənk'al *four-20-units*
100 ho?k'al *five-20-units*
300 ho?luhunk'al *fifteen-20-units*

When a numeral belonging to this or to Sets III or IV is used in speech, its context frequently indicates the class of objects being enumerated. For clarity a speaker may add a phrase which includes a classifier, as hunk'al ti koht *20 of animals*. By contrast, *10 animals* would be luhunkoht, with a classifier as a part of the numeral itself. Similarly, *36 animals* would be wəkluhunkoht i ča?k'al *quantifier 6 + quantifier 10 + classifier towards two-20-units*.

In Set III, the suffix -bahk' occurs with numbers from 400 and above. The following are a few examples:

400 humbahk' *one-400-unit*
500 humbahk' yik'ot ho?k'al *400 with 100*, or ho?k'al i ca?bahk' *100 (beyond 400) towards two-400-units*
564 humbahk' yik'ot čəmp'ehl i bolonk'al *400 with 4 (beyond 160) towards nine-20-units*
800 ča?bahk' *two-400-units*
1,055 ča?bahk' yik'ot ho?luhump'ehl i ušluhunk'al *800 with 15 (beyond 240) towards thirteen-20-units*
4,000 luhumbahk' *ten-400-units*

In Set IV, the suffix -pik occurs with numbers from 8,000 and above. Chol terms for numbers in the thousands are gradually giving way to the Spanish mil *1,000* with some speakers. Thus, the number 3,000 is often given as ušp'ehl mil *3,000* rather than ohlil i wašəkbahk' *one-half towards eight-400-units*.

2. A comparison of Chol with a few of the examples given by Miss Keller from Chontal[5] highlights the similarity of the two languages in the use of numeral classifiers.

Chontal	Chol	
unčit te?	hunc'iht te?	*one stick*
čak'e wah	ča?k'ehl wah	*two tortillas* (corncakes)
ušlip'	ušlihk	*three-pieces*, as of cloth
čəmp'is bu?u	čəmp'is bu?ul	*four-measures-of beans*

In the expression hunc'iht te? the morpheme hun-, like its corresponding morpheme in Chontal, is a quantifier and the morpheme -c'iht is a Chol classifier corresponding to the Chontal classifier -čit.

At least three other features of the Chontal system have parallels in Chol: (1) A

[5] Keller, op. cit., pp. 260–262.

distributive is formed in Chol, as in Chontal, by the reduplication in part or in whole of the quantifier: Chontal: čača?tu a kəče? *by-twos you tie-them*[6]; Chol: ti ča?ča?tikil ma? kəč *by twos you tie.*

(2) In the formation of ordinals, the Chol suffix -lel corresponds to the Chontal suffix -ib. Unlike the Chontal, the Chol suffix is unrestricted in that it may occur with any of the quantifiers: Chontal: u ča?pečib ha?as[7], Chol: i ča?kehblel ha?as *the second bunch of bananas.*

(3) Sequences of numerals, in which the quantifiers represent the sequence and the classifiers are the same, are also used in Chol to express *some* or *few.* In Chontal the sequence may be *one two* or *two three.*[8] In Chol the form usually heard is *two three,* as in ča?p'ehl ušp'ehl k'in *a few days,* or ča?tikil uštikil *a few people.*

[6] Ibid., p. 271.

[7] Ibid., p. 273.

[8] Ibid., p. 274.

MARRIAGE, AFFINITY, AND DESCENT IN TWO ARAWAKAN TRIBES: A SOCIOLINGUISTIC NOTE

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1. Introduction
2. A comparison of affinal terms
3. Lokono marriage and Island-Carib descent

1. Of all Guinese tribes, only the Lokono or coastal Arawak today have exogamous matrilineal clans; but little appears to be known about the matrimonial system and kinship pattern of this people before they became infected by contact with Old World institutions. De Goeje seems to suggest that they once favoured matrilateral cross-cousin marriage; for he tells us that "a man who marries becomes subject to his father-in-law", and in the same place relates the Lokono term for a man's mother's brother to a word meaning 'master or ruler'. According to the same author, FBr may be called by the same term as that meaning 'father', and FSr by the same term as that meaning 'mother', or, alternatively, by derivatives of these terms which are also applied to step-parents and, in the case of the latter, to MSr and to MBrW. On the other hand, Roth gives special terms for a man's MBrW, and for its reciprocal, a woman's HSrS, but records the same term as that translated 'mother's brother' by de Goeje for either a man's or a woman's FBr or MBr; while Hickerson says specifically: "Kinship terminology is of the lineal type—that is, the direct descent line is terminologically distinguished from both paternal and maternal collateral kin, and these two groups are lumped together."[1]

This lineal type of kinship terminology seems quite unsuited to any one of the three forms of cross-cousin marriage (bilateral, matrilateral, patrilateral); although it is elaborated, in the case of Lokono, by what Hickerson calls "the two criteria of relative age and relative sex." So, for example, we find in her stem-list, "-in- *uncle through parent of same sex*," and "-dain- *uncle through parent of opposite sex*." The former stem is found in neither de Goeje's list nor in that of Roth; while the latter is glossed as 'mother's brother' by the first of these authors, made the exact equivalent of our 'uncle' by the second, but semantically distinguished according to relative sex by neither. Yet both de Goeje and Roth distinguish, as Hickerson does not, between two stems designating, respectively, a woman's relationships to her daughter-in-law and to her son-in-law. Since all three authors recognize the same principle as applying to some—though not always the same—kinship terms, it may well be that, as a consequence of changing attitudes toward marriage and the family, the language itself is undergoing a change in this respect. Analogously, several changes have occurred, or are now taking place, in the kinship terminology of related (Arawakan) Island-Carib since first it was recorded in Dominica, by Breton, more than three hundred years ago; and it seems possible that a comparison of affinal terms belonging to this language with their cognates (whether equivalent or

[1] Data on Lokono are taken from C. H. de Goeje, The Arawak Language of Guiana, Amsterdam, 1928, (v. especially pp. 193–197); Nancy P. Hickerson, 'Ethnolinguistic Notes from Lexicons of Lokono', in IJAL 19.181–190, section **1**; and Walter Edmund Roth, An Introductory Study of the Arts, Crafts, and Customs of the Guiana Indians, 38th Annual Report, BAE, Washington, 1924, pp. 674–5.

not) and equivalents (whether cognate or not) in Lokono may help to shed some light on the older pattern or patterns that they reflect.

Island-Carib kinship terminology is of the 'bifurcate merging' type; father's brother's and mother's sisters are equated with own parents, and their children with own siblings, while father's sisters and mother's brothers and their offspring are distinguished by terms that it will be convenient to translate as 'aunt', 'uncle', '(a man's) aunt's daughter', '(a girl's) uncle's son', and so forth. Breton nowhere mentions line of descent; but he tells us, explicitly and in detail, how marriage with a cross-aunt's daughter was the favoured matrimonial system in his time. We may suspect, however, that this short-term, patrilateral type of 'échange indirect', as Lévi-Strauss calls it, had been introduced by the Kalina invaders of the Lesser Antilles, since the only terms given for 'aunt', 'uncle', 'niece', 'nephew', and for the cross-cousin relationships are of Cariban ancestry, although women otherwise employed their own Arawakan kinship terms, which have now largely superseded the Cariban equivalents still employed in the 17th century by men.[2]

[2] Data on the Island-Carib refer, except as otherwise stated, to the inhabitants of Dominica (Lesser Antilles) about the middle of the 17th century, and to their language; and are taken from Raymond Breton, Dictionaire Caraibe-François, réimprimé par Jules Platzmann, édition fac-simile, Leipzig, 1898, (v. especially pp. 11f., 268, and 277f., and Dictionaire François-Caraibe, *idem*, Leipzig, 1900; Jean-Baptists Labat, Voyages aux Isles de l'Amérique, (abridged edition), Paris, 1931, vol. I, pp. 163–4; and Armand de la Paix, *in* Rennard, Les Caraibes; La Guadeloupe, 1635–1656, Paris, 1929, pp. 58–61. I have given a summary of this people's marriage customs as portrayed by the above-mentioned and other contemporary chroniclers in *Man* LIII (1953), No. 175. For the kinship terminology and usage of the present-day speakers of Island-Carib (in Central America), see my monograph, The Black Carib of British Honduras, VFPA No. 17 (New York, 1951). For the line of inquiry followed in the present 'Note', I am indebted to Claude Lévi Strauss, Les Structures élémentaires de la Parenté, Paris, 1949, (v. especially chapters XIII, XXVI, and XXVII).

2. Island-Carib -ítiti (*a woman's*) *son-in-law* and Lokono -ititi *son-in-law* are obvious cognates; moreover, de Goeje (but not Hickerson) qualifies the Lokono form's meaning as 'woman's', and gives -uri(hi)ti-ti (*a man's*) *son-in-law*. But Breton also gives Island-Carib ítịų (*a woman's*) *mother-in-law or son-in-law* ('la bru apelle ainsi sa belle-mere, & la belle-mere son gendre'), which appears to be cognate with Lokono -itio *daughter-in-law*. To add to the confusion, and corresponding to either of Breton's terms, the modern dialect of Island-Carib now spoken in Central America has -ídi (pl. -ídių) (*a woman's*) *son-in-law*, (*a man's*) *daughter-in-law*. However, following the sentence cited above in parentheses, Breton adds what looks like an explanation given in his presence (my phonemicization and translation): ketẹiukota . . . hanéke nʰibáią nʰáune *because ye beget their grandchildren for them*. And, as a synonym of ketẹiukota *engendrer* inserted between it and the next word, Breton offers alternative sẹiutuikota, and elsewhere, as a synonym of this latter form, sẹiųtae. Now the stem of the first word, which contains k- *attributive* and -kota *causative*, is also listed by Breton as a free form, étẹių, *pl.* etẹ́iunų *progenitors, fathers-in-law, mothers-in-law*. So unless Breton's 'explanation' is a piece of folk-etymology, it at least shows that the kinship terms in question designated one who fulfilled a particular function in the matrimonial system with respect to another rather than a person belonging to this or that generation and sex; and it seems plausible to suppose that these older Island-Carib forms contained a morpheme, -ịų- ~ -ịu- ~ -ių- ~ -Ẏiu-, cognate with Lokono -io *mother*; (cf. Baure and Moxo -eno *mother*, Piapoco and Adzanenni -inu *wife*, Adzanenni inaru *woman*, iniri *husband*).

Breton's Island-carib -ákore (*a man's or a woman's*) *daughter-in-law* corresponds to -ágoro (*a woman's*) *daughter-in-law* of the

modern Central American dialect and, apparently, to -kuru (Hickerson), -kerre, -ǒkürō, -akiru, akkürrü-, (de Goeje, from his own and other records), *mother-in-law* of modern Lokono (qualified as 'woman's' both by de Goeje and by Roth). Possibly these terms are related to Island-Carib and Lokono akora *to tie*, and thus have the significance of 'ally'.

Breton's Island-Carib imetámulu (*a man's*) *father-in-law* and iménuti (*a man's*) *mother-in-law* were transparent teknonymous compounds, whose first member (in both terms), which he attributes to the women's speech, occurs in free form as his im *fruit, seed, son, egg*, (according to context), and whose second members are seen in his itámulu *my grandfather* and ɟnuti (*my*) *grandmother*, which he attributes to the men's speech. Since modern (Cariban) Kalina has eme *my child*, tamulu *my grandfather*, emetamulu *my father-in-law*, and note *my grandmother* (the word for mother-in-law is missing from my Kalina data), we might presume that Breton was mistaken, and that both members of these Island-Carib compounds are Cariban,—especially since he assigns imáku *son* and ímulu *my son* to the men's speech. However, when we compare the Lokono forms for father-in-law and (a man's) mother-in-law with those for grandfather and grandmother, as cited by de Goeje, it seems clear that the former are or were, like their Island-Carib equivalents, tekonyms containing a stem meaning grandparent. De Goeje cites Schumann's umadukur-ti *father-in-law* and adukutti *grandfather* his own da-madukure-tsi *my father-in-law* and da-dukuci *my grandfather*; likewise, Schumann's umükuttü (*a man's*) *mother-in-law* and aküttü-hü *grandmother*, and, from his own and other records, -makŏtŏ, -mukete, -mikete, (*a man's*) *mother-in-law*, -kŏtŏ, -kete, *grandmother*. Evidently the first morpheme of these Lokono parent-in-law terms occurs only in bound form; but if it can be identified with the root of de Goeje's Lokono imeoda *to bring forth* (*children*), its resemblance to Kalina eme and to Breton's Island-Carib ím is remarkable. Corresponding to the above, the modern Central American dialect of Island-Carib has -ɟmedamuru (*a man's or a woman's*) *father-in-law* and -ímenodi (*a man's or a woman's*) *mother-in-law*; but although this dialect retains -ɟ ~ hɟ with all the meanings of Breton's ím (see above), these parent-in-law terms have now become unanalysable, since the only grand-parent terms known today are those of the former 'women's speech', -áruguti (Breton's -árkuti) *grandfather* and -agóto (Breton's -ákotoni ~ akéte) *grandmother*, with which compare the Lokono forms cited above.

Island-Carib iráiti *husband* and iáni *wife* are equivalent to Lokono ireti *husband* and iraito *wife*. The Island-Carib and Lokono terms for *husband* are obvious cognates; while the latter appears to contain the same stem as iraito *wife*, ireio *state of wifehood*, ireno *children*, and if so, we may conclude that Island-Carib iráiti *husband* and iráho *child, little one* were once similarly analysable and related. The Island-Carib terms meaning 'husband' and 'wife' have now been replaced, in the Central American dialect, by a single term, úmari, derived from úma- *with*, and hence having the literal meaning of 'consort'.

If Island-Carib iéruti (*a man's*) *sister's husband* is of Arawakan ancestry, its most probable Lokono cognate is aieroti *bondsman*; and this seems to support de Goeje's statement about servile sons-in-law. Its nearest equivalent in modern Lokono (Breton gives no term for a woman's sister-in-law), -uribi(a)- *sibling-in-law of same sex*, is etymologically obscure, but should be compared to Lokono -uri(hi)ti-ti (*a man's*) *son-in-law*. Partially equivalent terms retained in the modern Central American dialect of Island-Carib, -ibámu (*a man's*) *brother-in-law* (but restricted in Breton's day to 'sister's husband', as a synonym of iéruti) and -ɟgatu (*a woman's*) *sister-in-law*, appear to be both of Cariban ancestry. The

latter term is particularly interesting since it formerly meant, according to Breton, "(a girl's) maternal male cross-cousin with whom intermarriage was not contemplated."

On the other hand, Island-Carib niránių *my sibling-of-same-sex's spouse* and uaránįku *my spouse's sibling-of-same-sex* appear to be related to Lokono -ranomal- (woman speaking) and -ronai- (man speaking) *sibling-in-law of opposite sex*. The first Island-Carib term contains the prefix marking 1st person singular, n-, and perhaps the morph -ių, which, as has been suggested above, seems to have some sort of reference to procreation. The second Island-Carib term probably contains the prefix marking 1st person plural, uA-, and perhaps a morpheme cognate with Hickerson's Lokono -ku- *consanguineal elder* (cf. also Island-Carib -úku-si-li *father* and -úku-su-ru *mother*). And if so, the more central part of these forms may well be related to those discussed in the last paragraph but one; so that niránių would have meant originally something like 'my children's progenitor', and uaránįku something like 'our children's consanguineal elder'. Corresponding to the above, the modern Central American dialect of Island-Carib now has -irani (*pl.* -iránių) (*a man's*) *brother's wife or wife's sister*.

Overlapping semantically with the foregoing terms, Island-Carib -anire appears to have been connected with institutional avoidance, and has no equivalent in modern Lokono. In Breton's day, it was applied to a man's brother's wife or wife's sister, and to a woman's husband's brother; in the Central American dialect today, it is employed of a woman's husband's brother or sister's husband.

Two Lokono affinal terms, daiokato *my* (*man's*) *mother's brother's wife* and its reciprocal, daitikiti *my husband's sister's son*, are given by Roth, (p. 675, who writes them 'daiyukato' and 'dai-chi-ki-chi'), but not by either de Goeje or Hickerson. It seems plausible to suppose that the former—for which no Island Carib equivalent is recorded—contains the morph -io *mother*; the latter the morph -iti *son*. And if so, alternative analyses of the rest of these words appear to be possible: -kato and -kiti may consist of an assimilative morpheme -ka ~ -ki *like*, followed by the copular -tI and *feminine-neuter* -o or *masculine-human* -i; or: these forms may be second members of compounds, themselves complex and containing a morpheme -ka ~ -k- designating *parent's sibling-of-opposite-sex*, followed by -to *daughter* or -iti *son*; so that the more literal meaning of these kinship terms' stems would then be: -io-ka = to *mother's 'uncle's' daughter* and -iti-k = iti *son's 'aunt's' son* (in which *'uncle'* designates MBr, and *'aunt'* FSr). If the latter interpretation were correct, our hypothetical -kato (*girl's or woman's*) *'uncle's' daughter* would find a likely cognate in Island Carib -(i)gatu (*girl's*) *mother's brother's son* → (*woman's*) *brother's wife or husband's sister* (despite what has been said above of this stem's apparently Cariban ancestry); and the anomalous changes of meaning could be attributed to confusion following a change in the preferred marriage pattern.[3]

[3] Nancy P. Hickerson's ingenious analysis of some Lokono kinship terms' stems may be questioned in a few cases.—particularly those said to contain her "43. -da ~ -dV- . . . *sex-differentiated*". Thus, the latter can hardly be present in her "Nb9. -diki- *younger sibling, opposite sex*" if, as it would seem, this form is to be identified with her "1034. -adiki *after*". Admittedly, I make this identification on the basis of what appear to be Island Carib cognates: Breton's Dominican árisi (-árigi *after* of the Central American dialect) *après* and *reste, trace*, l-árisi-ti (C.A. lárigiti) "*c'est celuy qui suit, qui est après luy*". Nor can such a morpheme well be present in the stem glossed as *grandparent, opposite sex* by Hickerson, but which I take to mean *grandfather*, if this same stem enters—as it appears to do; see text of section **2** above—into a teknonymous compound meaning *father-in-law = children's grandfather*, since the *children's* sex is undetermined.

De Goeje cites both adi and adiako, the latter containing -ako *in*, as meaning *upon, over, more than*; and it would seem to be this adi that enters into Hickerson's Nb9 and 1034 (see above). It may

Breton gives two special terms by which men and women respectively designated the children of their 'nephews' and 'nieces', but says explicitly that these children employed, as reciprocals, the same terms as did their parents, iáu *uncle*, náopuli *my aunt*.

3. Adequately attested in the ethnography both for the Lokono and for the Island-Carib, matrilocal residence is also reflected in their kinship terminologies, expecially in that first recorded for the latter people. Here, a man's mother-in-law and father-in-law have distinct albeit teknonymous appellations, while those of a woman are both called 'progenitor', a term also applicable to a woman's son-in-law. But there are also other and different terms for the latter individual's relationships to his wife's mother (títiti *her son-in-law*) and father (libálimuku *his son-in-law*, from libáli *his grandchild*), while one term, -ákore, includes a daughter-in-law's relationships to both. Alternative (Arawakan and Cariban) terms were offered for a man's sister's husband, but it appears there was none for the reciprocal relationship of wife's brother, and none for a woman's sister-in-law of either sort. On the other hand, three different terms are given for siblings-in-law of opposite sex, who are distinguished as

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also underlie aditi *son* and adita *to know*, which are the older, attested forms of modern Lokono -iti ~ aiti and aita (with the same meanings). Analogy suggests that -(a)diki(-) and -(a)duku- (*grandfather*, as I take it) should be similarly analysable: that the latter should also mean something like *before* (*in time*)—*predecessor* and contain a morpheme adu, meaning *below*. A morpheme adu is indeed attested, but is glossed (unfortunately!) *parasol*—a meaning which neither contradicts nor confirms this theory.

Moreover, while Hickerson's "18. -ku- *consanguineal elder*" is at least very plausible (cf. also Island Carib: Dominican -ukusili and C.A. -úguci *father*, Dominican -ukusuru and C.A. -úgucu *mother*), *sibling* will not do as a translation of -ki- in -diki- *younger sibling of opposite sex* if this same form occurs, as I have suggested, in -adiki *after*. Now -buki- or -buke- (so Roth) *elder sibling of same sex* appears to be cognate with Island Carib ſbukaię (C.A. ſbugaią) *elder sibling*; while -uki- < -huki- (so Schumann, circa 1755) < *-tuke- (cf. Lok. hikihi and earlier hiket, meaning *fire*, with Palicur tiketi *fire* and Island Carib atíketik *fire-fly*) *younger sibling of same sex* is probably cognate with Island Carib -túkae ~ itúke (modern C.A. -dúhe ~ idúhe *kinsman or kinswoman*), whose meaning, according to Breton, was not only *parent* but also *semblable, pareil*. This suggests that the first interpretation given in the text of this section (see next to last paragraph thereof) of the forms (-io)kato and (-iti)kiti was correct, and that -ka(-) *assimilative* assumes or assumed different shapes in different environments and dialects.

Finally, since Hickerson recognizes (IJAL 20.297) a form "S59. ilon- ~ ire- *child*" (cf. Island Carib -raho ~ iráho *child*), I do not understand why she sets up (IJAL 19.182) ((Naiįll. -re- ~ -rai- *spouse*" instead of recognizing ireti *husband* and ireio *wifehood or wife* to contain the same stem as ireno *children*, the first in composition with -ti *father*, the second in composition with -io *mother*, and the third combined with the suffix-no *stem pluralizer*. And if this is granted, it is logical to conclude that also iraito *wife* is a teknonym, although the second member of this presumed compound— *-ito? It cannot be -to *daughter*—is in this case obscure. Somewhat similarly, Daniel Brinton failed to analyse the words for *marry* when he wrote: "A slight difference in many words is noticeable when pronounced by women or by men. The former would say keretin *to marry*; the latter kerejun"—that is, in Hickerson's transcription, kereion. I take it that the former word contains ireti *husband*; the latter ireio *wife* (in this case); while both words have the attributive prefix kA- and the subordinating suffix -n. Hickerson's -lukun- *grandchild, consanguineal junior* must once have been identical with her -likin *pet*; cf. Schumann's -likin- ~ ilikin *grandchild, living property*, and in Island Carib, Breton's "íliguini *animal que je nourris*, . . . níliguini *mon nourrisson, mon enfant*", modern C.A. -lógǫ ~ ilógono *living property*.

It seems possible that the -to or -ito (< *-tio) of iraito *wife* may once have been a variant of modern -io *mother*, and have been retained in this context by analogy to ireti *husband*. If so, I should be inclined to see in the si/ci and su/cu sequences of the Island Carib terms for *father* and *mother* (see above) one-time stems having borne these lexical meanings, rather than suffixes related to Lokono -kili *he who . . .*, -kuro *she who . . . or it which . . .*, -kuno *they who . . .*; and this again would call into question the meaning of -(u)ku-/-(u)gu-, common to both terms.

'sibling's spouse' and 'spouse's sibling'. Lack of concern with affinal relations who would not usually form part of a matrilocal household is also evident, though to a lesser extent, in the terminologies of the modern Central American dialect and of Lokono.

We know that descent is matrilineal among the Lokono, and that patrilateral cross-cousin marriage was favoured by the Island-Carib; but we do not know what, at the time of first contact, was the matrimonial system of the former group, or the line of descent among the latter. However, Lévi-Strauss has shown that 'échange direct' or bilateral cross-cousin marriage is incompatible with what he calls a 'régime harmonique' (a system that is, at the same time, either patrilocal and patrilineal or matrilocal and matrilineal); and since the Lokono clearly belong to this category, we must conclude that preferential mating among them, if it existed, took one of the two possible forms of 'échange indirect' or unilateral cross-cousin marriage, matrilateral or patrilateral.

The one-time existence in Lokono, attested by Roth, of a special term for the wife of a man's maternal uncle, and of another for the son of a woman's husband's sister, certainly points to the matrilateral type of 'échange indirect', since only under such a system would these relationships be of importance as those of 'potential mother-in-law' and 'potential son-in-law' respectively; and the linguistic forms themselves, as we have seen, tend to support this view. Similarly, the patrilateral system of the Island-Carib is reflected in their use of a term for the husband of a man's paternal aunt; although the employment of another for the son of a woman's husband's sister appears to be an anomaly in their case.

Besides the stem, given only by Hickerson, for 'uncle through parent of same sex', and that which she explains as 'uncle through parent of opposite sex' and de Goeje as 'mother's brother', both authors give another, -tebua- or -teboa-, which the first translates as 'uncle, step-father', and the second as 'step-father, father's brother'. Hickerson tells us that it is derived from -ti / ititi *father* by the addition of a suffix -Ebua- *step-* or *by extension*; and gives similar derivatives from the stems meaning 'mother', 'son', and 'daughter', for 'aunt', 'nephew', and 'niece'; (de Goeje adds, to the meanings of the first, that of 'step-mother', and for the other two gives only 'step-son' and 'step-daughter'). Now Island-Carib, as we have seen under **2** above, has a suffix, -kaią in the old Dominican dialect, -haią in that of present-day Central America, that functions analogously. So, in the latter dialect, núguchiháią *my stepfather*, or *my father's brother*, from núguci *my father*; although this latter form may be employed for all three relationships except when differentiation is requisite—just as de Goeje says of Lokono that the same form may be employed for 'father's brother' as is employed for 'father'.

If we are right in supposing that certain discrepancies in the records of Lokono kinship terminology indicate change, we may, by pooling the information given by different authors, arrive at something more nearly approaching an older pattern; and this, no longer of a purely lineal type, appears more suited to the matrilateral type of cross-cousin marriage hypothesized by de Goeje. So, perhaps, for the first ascending generation (apparent 'holes in the pattern' are filled by guesses in parentheses):

	woman's	man's
-ti	F, FBr	F, FBr
-teboa-	StF, FBr	StF, FBr
-io	M, (MSr)	M, FSr
-iaboa-	StM, MSr, MBrW	StM, MSr, FSr
-in-	MBr	(FSrH)
-dain-	(FSrH)	MBr
-maduku-	(HF)	WF
-ioka(to)	(FSr)	MBrW
-koro	HM	—
-makoto	—	WM

Among the Island-Carib, matrilocal residence was combined with patrilateral cross-cousin marriage; but although either

this or the alternative, matrilateral form of 'échange indirect' is imposed by a 'régime harmonique', the converse is not necessarily true. In other words, while the co-existence of matrilocal residence and matrilineal descent, as among the Lokono, allows us to exclude the possibility of preferential mating in its bilateral form for this people, a unilateral system combined with matrilocal residence, such as was found among the Island-Carib, does not justify us in concluding that they also must have been matrilineal. Indeed, they could not have been if, as Lowie asserts, they were one of the tribes among whom a man might marry his sister's daughter.[4]

This assertion, however, seems to be based upon the statement of a single and somewhat superficial observer, Labat, who says:

'Leur coutume n'est pas qu'un frère épouse sa soeur, ni une mère son enfant; mais pour tous les autres degrés, et pour la pluralité des femmes, ils ont une liberté si générale et si étendue que très souvent le même homme prendra pour femmes trois ou quatre soeurs qui seront ses cousines germaines ou ses nièces.'

Labat appears not even to have noticed the distinction made between parallel and cross cousins—much less that between children of a paternal aunt and those of a maternal uncle; and the nearest approximation to the state of affairs that he indicates is to be found in Armand de la Paix, who says: 'Plusieurs épousent les deux soeurs; quelques uns la mère et la fille.' Since this statement follows immediately upon one to the effect that boys had a preferential right to marry their father's sisters daughters, it may well have reference to marriage with a brother's daughter and his widow (that with father's sister and here daughter is less likely); and if so, descent could not have been patrilineal. But cross-cousin marriage, though the favoured pattern, was not a rule, as all our more serious sources make clear; and it is equally possible that these marriages of mother and daughter to the same man were not of the consanguineal variety.

The Kalina, to which tribe the Cariban-speaking invaders of the Lesser Antilles traditionally belonged, are today matrilocal and uninterested in line of descent, as is the case with other Cariban tribes of the Atlantic drainage. The Oayana, to the south, are matrilocal and patrilineal; and at least their kinship terminology (not to mention their 'régime dysharmonique') points to preferential mating in its bilateral form (see now next to last paragraph under **2** above). Also the Makiritare are patrilineal, as are the Apalai, the latter with patrilocal residence.[5] It therefore seems most probable that the Caribs who left the mainland and settled in the islands were already accustomed to matrilocal residence, but not to either matrilineal descent or to a unilateral form of cross-cousin marriage. Had they subsequently adopted without change the kinship pattern and matrimonial system into which their Arawakan-speaking wives and mothers had been born, it is most unlikely that just those kinship terms most often correlated with preferential mating should have been completely superseded by Cariban 'equivalents'; and we may presume, on the contrary, that terms previously employed for similar relationships were lost because a change of system had rendered them meaningless. And that is why I conclude (although proof, at the present time, seems impossible) that a compromise was reached between victor and vanquished; the former accepting the *status quo* so far as it consisted in a 'régime harmonique' with 'échange indirect', and the latter agreeing in return to a replacement of the long-term, matrilateral system by its short-term, patrilateral alternative.

[4] See Robert H. Lowie, 'The Social and Political Organization of the Tropical Forest and Marginal Tribes', in the Handbook of South American Indians, vol. 5, BAE-B 143, Washington, 1949, p. 317. The same assertion has been made by Kirchhoff, and repeated by Gillin.

[5] For a convenient summary of what is known about these and other tribes of the Guianas, with bibliographies, see Irving Rouse, Guianas, Program of the History of America I, 7, Mexico, 1953, —especially Topics 39–54.

NOTES AND REVIEWS

A Note on Athapaskan Glottochronology[1]

D. H. Hymes

1.1. Glottochronology has available two different test-lists associated with two different retention rates. The earlier 215 (or 200) item list has a retention rate of 80.5% per millenium, while the revised 100 item list has a retention rate of 86% per millenium. The revised list is to be preferred. When it is applied, and some of the items can not be used, replacements may be sought from a supplementary list of 100 items. This is the procedure followed in Hoijer's detailed study of Athapaskan chronology.[2]

When the list for which the retention rate was determined is used in modified form, it raises the question of the validity of the rate for the new list. This paper investigates for the Athapaskan languages the effect of different choices as to retention rate and modification of the test list.

1.2. The original study uses the 81% retention rate which was calculated for the 200 item list. This rate is applied to a test list composed largely (78%) of items from the revised list, for which the 86% retention rate was determined. One might expect the resulting divergence times to be underestimated, since, for example, if a pair of languages were to show 66% retentions in common, the first rate would give approximately 1000 years of divergence, while the second rate would give approximately 1377 years. In general, for any given percentage of retentions in common between two languages, the size of the calculated divergence time varies directly with the size of the retention rate used in the calculation. This is why, the higher retention rate being appropriate to 78% of the test items used in the original study, one would expect the use of the lower retention rate to result in divergence times lower than the true ones.

Two alternative procedures will illuminate the Athapaskan findings and the problem of the choice of retention rate for modified test lists. The rest of this paper is possible only because Hoijer's original study is the most exact and complete of any so far published for a large family. It gives all calculations of common percentage and time depth for each pair of languages, all forms for each language, and information as to which items are found non-cognate for each pair. This thoroughness makes it possible to evaluate each step, and to discover the effect upon the results of alternative procedures.

2.1. One alternative procedure is to recalculate the divergence times from the 100 item list used in the original study, but with the higher retention rate (86%). A second alternative procedure is to recalculate the divergence times, also with the higher rate, but only for the 78 items of the original study which are from the revised test list for which this rate was determined. The expectation would be that the first procedure would give divergence times (a) higher than the published ones, and (b) somewhat higher than the true dates, and that the second procedure would give divergence times (a) higher than the published ones, (b) somewhat lower than those from the first procedure, and (c) somewhat closer to the true dates than either of the other two sets of findings.

The reasoning behind such expectation is this. In general, for any given retention rate, the size of the calculated divergence time varies inversely with the size of the percentage of cognates retained in common. The list used in the original study is composed partly (22%) of items from a supple-

[1] I want to thank Harry Hoijer for reading the manuscript of this paper.

[2] Harry Hoijer, The Chronology of the Athapaskan Languages, IJAL 22.219–232 (1956).

mentary list, whose persistence on the average is not as high as that of the items on the preferred list. In the first procedure, which includes these supplementary items, one would expect the percentages of retained cognates to be somewhat smaller, and thus the divergence times to be somewhat larger, than would result from applying the 86% retention rate to the entire 100-item list for which it was determined. In the second procedure, one would expect the percentage of retained cognates, and hence the divergence times, to be closest to the hypothetical results of the ideal case.

2.2. The actual results follow. For each pair of languages compared, I give the divergence times according to the three procedures. The order of listing is: (a) original study (81% rate and 100 item modified list); (b) first recalculation (86% rate and 100 item modified list); (c) second recalculation (86% rate and 78 items from unmodified list). Abbreviations are: Nav—Navaho, Chir—Chiricahua, SC—San Carlos, Jic—Jicarilla, Lip—Lipan, Beav—Beaver, Carr –Carrier, Chip—Chipewyan, Gal—Galice, Kut—Kutchin, Sar—Sarcee. All calculations, as in the original study, use percentages rounded to two places.

2.3. Apachean languages among themselves: Nav-Chir 149, 205, 205; Nav-SC 279, 387, 424; Nav-Jic 279, 387, 311; Nav-Lip 335, 460, 348; SC-Chir 227, 311, 348; SC-Jic 335, 460, 424; SC-Lip 419, 579, 460; Chir-Jic 200, 274, 205; Chir-Lip 227, 311, 168; Jic-Lip 227, 311, 205.

2.4. Pacific Coast languages among themselves: Mattole-Kato 858, 1182, 864; Hupa-Kato 963, 1324, 1043; Hupa-Mattole 963, 1324, 1043.

2.5. Northern languages among themselves: Kut-Hare 506, 698, 821; Kut-Chip 628, 864, 864; Kut-Beav 755, 1043, 1089; Kut-Carr 858, 1182, 1182; Kut-Sar 1036, 1427, 1427; Kut-Gal 1036, 1427, 1528; Hare-Chip 660, 907, 907; Hare-Beav 628, 864, 907; Hare-Carr 858, 1182, 1182; Hare-Sar 928, 1278, 1228; Hare-Gal 963, 1324, 1377; Chip-Beav 477, 655, 698; Chip-Carr 628, 864, 864; Chip-Sar 660, 907, 907; Chip-Gal 724, 996, 1132; Beav-Carr 755, 1043, 1043; Beav-Sar 597, 821, 781; Beav-Gal 628, 864, 954; Carr-Sar 823, 1132, 996; Carr-Gal 823, 1132, 1182; Sar-Gal 858, 1182, 1278.

2.6. Apachean and Northern languages: Nav-Chip 628, 864, 864; Nav-Beav 660, 907, 1043; Nav-Gal 790, 1089, 1132; Nav-Carr 790, 1089, 1089; Nav-Hare 892, 1228, 1278; Nav-Kut 858, 1182, 1228; Nav-Sar 928, 1278, 1228; Chir-Chip 660, 907, 996; Chir-Beav 660, 907, 1089; Chir-Gal 755, 1043, 1132; Chir-Kut 823, 1132, 1228; Chir-Sar 928, 1298, 1278; SC-Chip 790, 1089, 1132; SC-Beav 823, 1132, 1377; SC-Gal 790, 1089, 1182; SC-Carr 928, 1278, 1278; SC-Hare 928, 1278, 1132; SC-Kut 1000, 1377, 1528; SC-Sar 1036, 1427, 1427; Jic-Chip 724, 996, 1089; Jic-Beav 790, 1089, 1228; Jic-Gal 858, 1182, 1278; Jic-Carr 892, 1228, 1228; Jic-Hare 928, 1278, 1278; Jic-Kut 963, 1324, 1324; Jic-Sar 928, 1278, 1278; Lip-Chip 724, 996, 1089; Lip-Beav 823, 1132, 1228; Lip-Gal 892, 1228, 1324; Lip-Carr 858, 1182, 1228; Lip-Hare 928, 1278, 1228; Lip-Kut 1000, 1377, 1324; Lip-Sar 1000, 1377, 1324.

2.7. Apachean and Pacific Coast languages: Nav-Kato 928, 1278, 1043; Nav-Mattole 1036, 1427, 1228; Nav-Hupa 1073, 1476, 1324; Chir-Kato 963, 1324, 1324; Chir-Mattole 1036, 1427, 1278; Chir-Hupa 1073, 1476, 1427; SC-Kato 1000, 1377, 1228; SC-Mattole 1112, 1528, 1324; SC-Hupa 1189, 1635, 1528; Jic-Kato 1036, 1427, 1427; Jic-Mattole 1036, 1427, 1278; Jic-Hupa 1112, 1528, 1476; Lip-Kato 1073, 1476, 1377; Lip-Mattole 1150, 1582, 1324; Lip-Hupa 1229, 1692, 1528.

2.8. Pacific Coast and Northern languages: Kato-Gal 724, 996, 954; Kato-Beav 724, 996, 907; Kato-Chip 823, 1132, 1089; Kato-Carr 1036, 1427, 1278; Kato-Hare 1036, 1427, 1377; Kato-Sar 1073, 1476, 1427; Kato-Kut 1036, 1427, 1377; Hupa-Gal 858, 1182, 1132; Hupa-Beav

928, 1278, 1089; Hupa-Chip 963, 1324, 1278; Hupa-Carr 1036, 1427, 1324; Hupa-Hare 1189, 1635, 1528; Hupa-Sarcee 1150, 1582, 1476; Hupa-Kut 1229, 1692, 1582; Mattole-Gal 1000, 1377, 1182; Matt-Beav 1112, 1528, 1377; Matt-Chip 1150, 1582, 1427; Matt-Carr 1150, 1582, 1324; Matt-Hare 1150, 1582, 1427; Matt-Sar 1189, 1635, 1324; Matt-Kut 1311, 1804, 1582.

2.9. All three sets of divergence times show the same pattern of relationships among the three groups of languages. The form of table devised by Hoijer is a lucid way of revealing such relationships.[3] In Table I, the first column of figures under each heading shows the number of divergences for that date interval according to the original study; the second column of figures shows the number of divergences according to the first alternative procedure or recalculation; and the third column of figures shows the number of divergences according to the second alternative procedure or recalculation. The date intervals are one hundred year periods ranging from 600 to 1800 years before the present.

3.1. That the 86% retention rate is more appropriate to the list used in the original Athapaskan study is indirectly shown by a calculation of the average persistence of the items. A recent paper[4] gives a table which shows the persistence of 215 items, expressed as the number of decades an item persists divided by the total number of decades studied in the 8 control cases; each fraction is also given as a percentage. From this table one can determine the average persistence of 92 items on the revised 100 item list; it is 73.56%. One can determine also the average persistence of 90 items from the 100 item list used in the original Athapaskan study; it is 73.41%.

3.2. Table I shows that the temporal nucleus of the Pacific-Coast/Northern divergences is about 1400–1700 years ago by the first recalculation, and about 1300–1600 years ago by the second recalculation. For the Pacific Coast/Apachean divergences, the temporal nucleus is about 1300–1600 years ago by the first recalculation, about 1200–1500 years ago by the second. For the Apachean/Northern divergences, the temporal nucleus is about 1000–1300 years ago by both recalculations. The general effect of the recalculations is to shift the break-up of the Athapaskan languages approximately 300 years further back in time.

TABLE I*

Intervals	Pacific Coast/ Northern			Pacific Coast/ Apachean			Apachean/ Northern		
1800		1							
1700									
1600		(3)			2				
1500		(5)	(3)		(3)	1			
1400		(5)	(4)		(7)	(4)		1	1
1300	1	2	(6)		(2)	(5)		4	5
1200	1	1	2	1	1	(4)		(10)	(14)
1100	(7)	2	2	(4)				(7)	(7)
1000	(6)		2	(7)		1	4	(7)	(5)
900	2	2	2	2			(8)	5	1
800	2						(10)	1	1
700	2						(9)		
600							4		

* The temporal nucleus in each column is enclosed in parentheses.

Probably the most distant pair of languages gives the best estimate of the total time depth of the entire family.[5] This pair is Mattole-Kutchin, having a time depth of 1582 years by the second procedure. The range of possible error may be calculated at the 7/10, 9/10 and 5/10 confidence levels; this results in time depths of 1582 ± 258 years, 1582 ± 400 years, and 1582 ± 155 years, respectively. The upper limit of the range of error at the 9/10 level just touches 2000 years. Roughly speaking, the range of error for a hypothetical case at the midpoint of the temporal nucleus for any of the three columns

[3] Hoijer, 1956, p. 231.

[4] Morris Swadesh, Towards Greater Accuracy in Lexicostatistic Dating. IJAL 21.121–137 (1955).

[5] Swadesh, 1955, p. 123.

resulting from the second recalculation would include the nucleus, even at the 5/10 confidence level, and would include all of the column at the 9/10 level.[6]

3.3. Two major sources of misestimation in glottochronology may be (a) failure to discover all cognates, which would lead to overestimating the divergence times, and (b) interinfluence among the languages following the initial breakup, which would lead to underestimating the divergence times. No influence of the first sort is likely in the Athapaskan case, since Hoijer is the leading authority for these languages. Some influence of the second sort is quite possible. In my opinion the general results of the recalculations should be taken as minimum divergence times for the Athapaskan languages. Their greater magnitude may fit more easily into archaeological and ethnological perspectives.

3.4. One important methodological consideration is the direction of the change in magnitude of the divergence times which results from the two recalculations. In all cases but two (Chir-Lip, Jic-Lip) the smallest divergence time is that resulting from the 81% retention rate applied to the modified 100 item list. (Chiricahua, Jicarilla and Lipan are so close to each other, as are the Apachean languages generally, and the number of years involved is so small, that this discrepancy is not significant for the general pattern). This is as expected. We do not find, however, that the largest divergence time is always that which results from applying the 86% retention rate to the modified 100 item list. This is the case for the Pacific Coast languages, when compared among themselves, and it is also the case when the Pacific Coast languages are compared to the Northern languages and to the Apachean languages. (Of the 15 Pacific Coast/Apachean comparisons, 2 are exceptions; for Chir-Kato and Jic-Kato, both recalculated divergence times are the same). When the Northern languages are compared among themselves, however, we find that only 3 comparisons, all involving Sarcee, show this result; 7 show both recalculated divergence times the same, and 10 show the second recalculated divergence time (the 86% retention rate applied to the 78 items) to be the largest. When the Apachean languages are compared among themselves, there is more scatter of results than for any other group. We find the largest class (5 cases) to show the expected relationship (the first recalculation giving the largest divergence time); in two cases (Nav-SC, SC-Chir), the second recalculated divergence time is the largest; in 1 case both recalculated divergence times are the same (Nav-Chir); and, as mentioned, two cases (Chir-Lip, Jic-Lip) have the first recalculated divergence time the largest, and the second recalculated divergence time smaller than that in the original study. (Table II summarizes these relationships).

When the Apachean and Northern languages are compared to each other, the proportions of the result are like those for the Northern languages alone. Only 6 cases show the first recalculated divergence times to be the largest (Nav/Chir/Lip-Sar, SC/Lip-Hare, Lip-Kut); 9 cases show both recalculated divergence times the same; and 20 cases show the second recalculated divergence time to be the largest. This result is in sharp contrast to the result of the comparisons between the Pacific Coast languages and each of these two groups. The explanation for the contrast has historical significance.

The difference must depend upon the presence or absence of the 22 supplementary items, for the retention rate (86%) is the same in both recalculations. Divergence time varies inversely with the percentage of cognates retained in common. This being so, the greater divergence times for comparisons involving the Pacific Coast

[6] Sarah Gudschinsky, The ABC's of Lexicostatistics (Glottochronology), Word 12.175–210 (1956), gives a procedure for calculating range of error.

languages, when the 22 supplementary items are included, show that the Pacific Coast languages retain a smaller proportion of these than of the 78 preferred items. The smaller or equal divergence times for the great majority (29 out of 35) comparisons between Apachean and Northern languages, when the 22 supplementary items are included, show that both groups agree in retaining a larger or equivalent proportion of these in comparison to their retentions of the 78 preferred items. This is true of both the Apachean and Northern groups, showing a mutuality between them, because when either is compared alone to the Pacific Coast languages, such an effect does not appear. (It is also true of the Northern languages among themselves). We conclude that the direction of the change in magnitude for the divergence times, resulting from the recalculations, confirms the conclusion that the Northern and Apachean languages are closer to each other than either is to the Pacific Coast languages.

TABLE II*

	$t_3 > t_2 > t_1$	$t_3 = t_2 > t_1$	$t_3 > t_2 > t_3$
Pacific Coast	3		
Apachean	5	1	2
Northern	3	7	10
Pacific Coast/Northern	21		
Pacific Coast/Apachean	13	2	
Northern/Apachean	6	9	20

t_1: 81% retention rate, 100 items.
t_2: 86% retention rate, 100 items.
t_3: 86% retention rate, 78 items.
* The Chir-Lip and Jic-Lip cases have been omitted from the table.

3.5. The effect of the recalculations on certain individual relationships should be surveyed. The recalculations show San Carlos as most apart within the rather homogeneous Apachean group, as does the original study. The failure of the divergence times to reflect the phonological isogloss (*t > t in Nav, Chir, SC, *t > k in Jic, Lip) separating the western from the eastern languages may suggest that this isogloss, like the centum-satem split in Indo-European, is not an overriding diagnostic feature. Contact for the last two or three hundred years, as Hoijer points out, is also involved, and lexical borrowing may have obscured an actual split signalled by the t : k correspondence. The recalculations show Hupa still apart within the Pacific Coast group, and still equidistant from Mattole and Kato.

In the original study Hoijer notes that Galice is included with the Northern languages for convenience, and might have been listed with the Pacific languages (since it is spoken in southwestern Oregon). The original study gives persistence times which link Galice closely with northern languages: Kut-Sar and Kut-Gal are both 1036, Carr-Sar and Carr-Gal are both 823, and Sar-Gal is no more distant than Kut-Carr or Chip-Carr at 858. Again, Beav-Gal at 628 is no more distant than Hare-Beav or Kut-Chip. The first recalculations affect this not at all, but the second recalculations do so decisively. Kut-Sar is 1427, but Kut-Gal 1528; Carr-Sar is 996, but Carr-Gal 1182; Sar-Gal is 1278, but Kut-Carr only 1182 and Chip-Carr only 864; Beav-Gal at 954 is more distant than Hare-Beav at 907 or Kut-Chip at 864. This result is in line with the geographical distribution. It still remains that if it is the first recalculation which shows the Pacific Coast languages most distant from the Northern group, but the second recalculation which shows Galice more distant from the Northern group, then Galice is linked with the north in a way that the other geographically Pacific Coast languages are not.

The comparison of the Pacific Coast and Northern languages from the recalculations confirms the somewhat earlier divergence of Mattole, relative to Hupa and Kato, but this is less clear in the second recalculation. An interesting result is that both the original study and the first recal-

culation show Hupa equidistant from Mattole (Pacific Coast) and Chipewyan (Northern), and closer to Galice; both also show that Kato is closest to Mattole, then Chipewyan, then Galice, in that order. On the contrary, the second recalculation shows both Hupa and Kato closest to Mattole, next closest to Galice, and least close to Chipewyan, so far as these particular languages are concerned. This last result is in line with the geographical distribution.

3.6. The results of the recalculations show that the choice of test list, modified or unmodified, and the choice of retention rate appropriate to a list, have a significant effect upon the internal relationships and the divergence times of a linguistic family. There is some indication in this case, though moderate, that it is better not to modify a test list for which a retention rate has been determined, and that the reduced test list (in this case one of 78 items) will give somewhat more exact results in particular cases.

On the other hand, we should distinguish general from limited effects. In an individual case, the presence or absence of the 22 supplementary items may make a difference of as much as 300 years: Mattole-Sarci show 1635 years divergence time with the 22 items, and 1324 years without, while Mattole-Kutchin show 1804 years divergence time with the 22 items, and 1582 years without. This last effect is shown graphically in Table I, where the second column under the Pacific Coast/Northern heading has one divergence time in the 1800 years interval, while the highest divergence times in the third column are only in the 1500 years interval. The greater compactness of the third column may be an indication of greater accuracy.

In the comparisons as a whole, the three procedures agree in showing the same general pattern of relationships among the three main branches of Athapaskan (the Northern group is not a single unit genetically, only geographically). Moreover, the very differences which result from different procedures may be illuminating, as is the case for the direction of the change in magnitude of the divergence times. On the whole, if some of the individual comparisons were taken in isolation, either by one procedure or by all, a confused picture might result. Taken together, in the light of known historic territories and linguistic developments, a fairly clear picture results. It should be made clear that the orderliness of the interrelationships in the three sets of columns in Table I was not obtained by statistical interpretation of the divergence times alone, but was externally derived from known facts of distribution as well. The existence of the three major groups can be determined by inspection of a table such as that presented in Salish Internal Relationships,[7] however; only the placing of Galice gives rise to some discrepancy. Such a table is not given here in order to economize space, but can be constructed from the data presented.

3.7. It should be noted that the glottochronologic results confirm a specific statement of internal relationship made by Sapir, and support the inference he drew from it. (This inference has since been logically analyzed and supported by Dyen.)[8] The inference is from the greater diversity of the Northern group of languages to the North as the Athapaskan homeland before migration. Sapir wrote: "I do not see that the divergence between, say, Carrier and Loucheux is less profound that that which obtains between, say, Chipewyan and Navaho. This being so, it would seem that the historical centre of gravity lies rather in the north than in either of the other two regions and that the occupation of these

[7] Morris Swadesh, Salish Internal Relationships, IJAL 16.157–167 (1950).

[8] Isidore Dyen, Language distribution and migration theory, Language 32.611–626 (1956), p. 623.

latter was due to a southward movement of Athabaskan-speaking tribes."[9]

The second recalculation gives the Chipewyan-Navaho divergence time as 864. Loucheux is not included in our data, but the lowest divergence time between Carrier and any northern language that is included is that with Chipewyan; it is also 864. All other divergence times between Carrier and other northern languages are higher.

4. The different results show the advisability of trying alternative procedures in a case where a retention rate can not be applied to the full list for which it was determined, so that both agreements and disagreements can be discovered and evaluated. We greatly need the thorough application of varying procedures to well-attested language families, so that we may be able to evaluate fully the power and limitations of glottochronology, and so that the effects of different procedures can be clearly understood. This is in accord with Kroeber's recommendation: "When we shall have half a dozen stocks known with the fullness of coverage that Swadesh has applied to Salish, comparison of these half dozen will give us not only a large piece of coherent history of native American speech but will help to refine the glottochronological method and probably to give us unsuspected new principles and general insight."[10]

HARVARD UNIVERSITY

ON THE AFFILIATION OF "ISLAND CARIB"

DOUGLAS TAYLOR

The Arawakan affiliation of Island Carib has been asserted by Lucien Adam (1878), by C. H. de Goeje (1939), and perhaps most recently by myself (1954), but has not ever, so far as I know, been demonstrated in any convincing way. It is true that a comparison of its basic vocabulary with that of Lokono (True Arawak) shows about 50 per cent of apparent cognates, and that some systematic sound correspondences have been found. But a similar comparison of pidgins and creoles with their 'mother languages' reveals still greater lexical and phonological resemblances; and it seems as unreasonable in their case, as I have tried to show elsewhere (in Word 12, in press), to call such relationships 'genetic' as it would be to apply that term to Interlingua's relationship to Latin. As Swadesh, in agreement with many other linguists before him, has recently declared (v. Language 32.22): 'In establishing a genetic relationship, either structure or lexicon may be used as the first clue, but both must be involved in the final proof.' In what follows I shall take the lexical resemblances for granted, and discuss only such 'coïncidences de formes grammaticales particulières' (Meillet), or 'grammatical elements which make up the basic structural features of the languages compared' (Bergsland), as I can find in the data available to me.

Both Lokono and Island Carib have categories of personal affixes (prefixes and suffixes) indicating three persons, two numbers and—in the third person singular only—two genders. For Lokono these are: dA- ~ -da *I or my* and -de *I or me*, bV- ~ -ba *thou or thy* and -bu *thou or thee*, lv- ~ -la *he or his* and -i *he or him*, tv- ~ -ta *she or her* (*possv.*), *it or its, they or their* (*non-human*) and -no ~ -n *she or her* (*obj.*), *it, they or them* (*non-masculine*), uA- ~ -ua *we or our* and -o *we or us*, hv- ~ -ha *ye or your* and -ho *ye or you*, nA- ~ -na *they or their* (*human*) and -ie *they or them* (*masculine or mixed human*). And for Island Carib: n- *I or my* and -na *I or me*, b- *thou or thy* and -bu *thou or thee*, l- *he or his*, (*masc.*) *it or its*, (*inanimate masc.*) *they or their* and -i ~ -į *he or him*, (*masc.*) *it*, (*inan. masc.*) *they or them*, t- *she or her* (*possv.*), (*fem.*) *it*

[9] Edward Sapir, Time perspective in aboriginal American culture, in Selected Writings of Edward Sapir (1949) 389–462, p. 456.

[10] A. L. Kroeber, Linguistic Time Depth Results So Far and Their Meaning, IJAL 21.91–104 (1955).

or its, (*inan. fem.*) *their or their* and -u ~ -nų *she or her*, (*fem.*) *it*, (*inan. fem.*) *they or them*, uA- *we or our* and -ua *we or us*, h- *ye or your* and -ho *ye or you*, nhA- *they or their* (*animate*) and -ię ~ -ių ~ -nų *they or them* (*animate*). Two other prefixes, common to both languages, are privative mA- *not, without* and attributive kA- (probably gA- ~ kA- in Island Carib) *having, with*. For the purposes of this note it will suffice to say that prefixes showing the morphophonemic symbol A usually—but not always—contain the vowel /a/, which may or may not 'absorb' (replace) a theme-initial vowel; prefixes showing the morphophonemic symbol v may or may not contain a vowel which is often—but not always—in harmony with the first vowel of the theme taking the prefix.[1]

From the above it appears that Lokono has two sets of personal affixes: one with prefixal and suffixal alternants, the other containing only suffixes; and that only the latter may indicate pronominal goal. Three of the prefixes (those of 1st sg., 1st and 3rd pl.) show (the characteristics symbolized by) A (see preceding paragraph). Plural number is restricted to human beings, masculine gender to males. According to my analysis (which agrees by and large with that of Breton), Island Carib has a set of personal prefixes and another of personal suffixes; and only the latter may indicate pronominal goal, (such a word as lúne, though translatable by *to or for him or masc.-it*, being morphologically a possessed noun). Two of the prefixes (those of 1st and 3rd pl.) show A. Plural number is restricted to animate—and to a very few only reputedly animate—beings; but inanimate objects may have either masculine or feminine gender, indicated only and always by the personal affixes and locator-stems of the third person singular employed in reference or in cross-reference to them. Both languages have privative and attributive prefixes showing the characteristics symbolized by A. In both languages the personal—unlike the privative and attributive—prefixes occur only as word initial; the personal suffixes of Island Carib and those of the second Lokono set occur only as word-final.

In substance, most of the Island Carib affixes cited above (with the notable exception of those marking first person singular) resemble their nearest equivalents in Lokono; and the corresponding affixes of these two languages have, except as qualified in the preceding paragraphs, equivalent functions. Thus, in both, the personal prefixes are employed in finite verbs, as in L(okono) teke : I(sland) C(arib) táiga *she eats or ate* (indefinite as to aspect and tense), and in possessed nouns, as in L teke *her clothing, its wrapping*, etc., which appears to be cognate with IC tágai *her* (*or its*) *container*, the meaning of whose theme,

[1] Lokono examples and other data are taken from The Arawak Language of Guiana by C. H. de Goeje, who took them from various sources as well as from his own recording, and from two articles by Nancy P. Hickerson (see under References), who collected her data during a six-months' field-trip in 1951–52. I have tried to follow the latter's transcription, in so far as possible, even when citing data taken from the former writer. I have also attempted some simplification by writing, for example, 'dA- ~ -da *I or my*' in place of Hickerson's 'dA- ~ dv- ~ -da *I, my*', since it seems to me that dv- can be subsumed under dA-. In at least one instance in which the two sets of data are contradictory, I have not hesitated to cite the form that appears to reflect an older state of the language. So, the list of Lokono personal affixes is from Hickerson with the exception of '-ie *they or them* (*masculine or mixed human*)', taken from de Goeje, and which, according to Hickerson, has now fallen together with '-i *he or him*'.

Island Carib examples and other data are taken from the works of Raymond Breton on the XVIIth-century dialect of Dominica (see under References), except for the transcription, which is a tentative phonemicization of my own. Readers are warned that the presence of a k/g opposition in the dialect described by Breton is by no means certain; and that if it existed, aspiration, and not voicing, was the distinctive feature. For a discussion of this problem, see now Word 11.245ff., and 420ff.

ágai, has a very wide inclusiveness. Moreover, in both languages, 'alienable' possession is often indicated by the addition of a suffix (as well as the personal prefix) absent from the absolute form of the same noun, as in L uaiulite : IC uaiúlite *our tobacco* from L iuli : IC iúli *tobacco*, and L lisapatun : IC lisabátuni *his shoe(s)* from L sapatu : IC sabátu *shoe(s)*—both borrowed from Sp. zapato. Likewise, denominal adjectival derivatives containing the privative or the attributive prefix have, in both languages, the nominal theme (rather than the absolute noun) as base; so, L maloko : IC mála *empty* and L kaloko : IC gála *having contents*, from L -oloko *interior, in* : IC -ila *contents*, L maiulite : IC maiúlite *without tobacco* and L kaiulite : IC gaiúlite *having tobacco* from L -iulite : IC -iulite *tobacco*, L masapatun : IC masabátuni *without shoes* and L kasapatun : IC gasabátuni *with shoes* from L -sapatun : IC -isabátuni *shoe(s)*. Such adjectival derivatives may then be verbalized, in one way or another, by further affixation; so, for example, L amaribenda *to cleanse* and IC agaraŋka *to deal or treat with herbal remedies* are indefinite verbs derived, respectively, from privative mariben *clean*, from the noun iribe *dirt* (cf. IC iríbe *soot*), and from attributive gáranį *remedial*, from the noun árani *medicine* (cf, L ada *tree*; L d : IC r being a regular correspondence). Such verbs may then take either a personal prefix or another privative or attributive prefix together with a suffix, the resulting adjectival derivative also being susceptible of verbalization, as in the case of IC magáraŋkátiti *he cannot (or will not) use herbal remedies*, from the adjectival particle magaraŋkati *unable (or unwilling) to use herbal remedies*.

The personal suffixes of both languages are employed in finite verbs, as in L kakukabu : IC gágutibu *thou'rt alive*, from kaku : gágu *alive*, and in L tamukudufabu, IC tahúlurubátibu, both meaning *she or it will swallow thee*, but whose stems, the indefinite verbs L amukuda and IC ahúlura meaning *to swallow*, have unrelated bases. They are also employed in some predicative words—belonging, in IC, to a form-class of 'locators'—of both languages; so, compare L (h)alikan daio, (h)alikaie daukioti *who-is my-mother, (and) who-are my-younger-brothers* with the equivalent IC form, kátanų núgusuru, kátaię namúlenų. Here we have, in the first and third words of these utterances, L -n : IC -nų *she* and L -ie : IC -ię *they*; although other equivalent morphemes that they contain appear to be quite unrelated.

Besides its function in some nominal themes and bases as described above, IC -ni is often a nominalizer, as in lulíbani *his badness*, from the adjectival particle ulíba *bad* (cf. ulíbati *he is bad*, an aorist verb), lauéeni *his death*, from áue *dead* (cf. auéeli *he has died*, a perfective verb), emériguti lalugúnibu *he sought—or seeks—thee everywhere*, whose first word, an aorist verb, Breton translates by Lat. *universalis est*; the second, a verbal noun, by *illius conquisitio tui*. And the verbal noun áluguni *quest, seeking* is derived from participial (adjectival) álugu *seeking*, which is itself derived from the indefinite (non-aspectual) verb áluga *to seek*. One may therefore speak of a suffix -U *participial* (= -u, -o or -i, according to environment) which usually replaces (but is, in a few cases, added to) final /a/ of the verb-stem. The participle underlies progressive (náluguię *I am seeking*) and imperfective verbs; the latter aspect including future-tense function, as in náluguba *I shall seek*. The verbal noun underlies, according to Breton, all negative verbs and verbal phrases—that is, such as include the privative prefix mA-. So, from arámota *to hide* come arámota uamą *let us hide* and uarámotuba *we shall hide*; while from arámotuni *hiding (verbal noun)* come marámotuni uámą *let us not hide* and marámotunibátiua *we shall not hide*.

In Lokono, although the details are not clear, the situation appears to be very

similar to that described in the preceding paragraph for Island Carib. De Goeje says explicitly that L -n forms verbal nouns, and gives such examples as uikiduadin *our faith*, from ikiduadi-, from ikiduada *to believe*; but he offers no coherent explanation of the change in stem- or base-final vowel. This change also occurs in future-tense verbs, and the verbal noun apparently underlies negative verbs and verbal phrases, as in: uasikifa, masikin uafa bota *shall we give, or shall we not give?* (isika *to give*), mausunbali *thou must not go* (ausa ~ -osa *to go*), mautunbalino *thou must not permit her* (-uta *to permit*). Hickerson analyses this last form as mA- *negative* + -uta *permit* + -n *subordinate* + -ba *thou* + -li *necessitive* + -no *her*, ignoring the change of stem-final /a/ to /u/. But if we compare the latter to such an IC prohibitive construction as marámotuni bánų *do not hide her*, the parallelism between the two languages becomes clear. Island Carib, having only one set of personal suffixes, employs a phrase consisting of a privative denominal, adjectival complement, followed by a conjunctive auxiliary verb with imperatival function and without lexical meaning of its own: mA- *without* + (arámota *hide* + -U *participial* + -ni *nominalizing*) *hiding* b- *thou* + -a ~ -uma *conjunctive auxiliary verb-theme* + -nų *her* (*goal*). In either language we have the same sequence: privative prefix + verb-stem + (stem-final a > u) + nominalizer, followed by personal affix marking pronominal agent (actor) + modal morpheme (L -li *necessitive*, IC -a- ~ -uma- *conjunctive*, though unrelated, are semantically equivalent in this case at least) + personal suffix marking pronominal goal. Such identity in the relative order of five post-stem, semantically similar morphemes, four of which also have substantial resemblance, seems to be a powerful argument in favour of a genetic relationship between these two languages.

The coincidence, in two or more languages, of anomalous forms of expression or of derivation or inflexion offers a valuable indication of genetic relationship; since it is most plausibly explained as a common residue of features that were normal in a parent tongue. Such anomalies, frequently by-passed in modern descriptions of 'exotic' languages, are understandably rare in de Goeje's description of Lokono, which is largely based on Bible translations. But at least one example may be found in a shaman's invocation, which he cites but does not analyse: bokonati damuni iulino *come to me, tobacco spirit*; adonkoro dafado buburadi *thou shalt find me sleeping*; andatu batekana *I request thee earnestly to come*; damun iulinu dadiaka bukonan *I request thee earnestly to come to me*. Clearly, this (de Goeje's) translation is far from literal; and while the first two words of the second clause or sentence appear to mean adonkoro *sleeping* (adonka *to sleep*), dafado *I shall be* (? cf. -afa-, future tense of auxiliary verb-theme -a- *say, do, be*), the third word, buburadi, from -obora *before* (*in time or place*), is morphologically a possessed noun meaning *thy 'precessor'—he that is before thee*, also employed as a kinship term for *thy elder brother of opposite sex* (v. Hickerson, 1953, p. 182). Apparently cognate with L -obora is IC -ubara *for, before* (*in time or place*), which is likewise a nominal theme; and among the latter's various employments we find: aliati búbara *où l'as tu trouvé?* (lit., *where-is-it/he thy-before*), katúmati búbara *chez qui l'as tu trouvé?* (lit., *whom-with-is-it/he thy-before*), mamąhali núbara *je ne l'ai point trouvé* (lit., *not-with-perfective-it/he my-before*). And yet, in other cases, both Lokono and Island Carib have, for the concept *find*, verbal forms quite unrelated to the foregoing or to one another.

The nearest equivalents, in these two languages, to the English verb *come* are L anda (so Hickerson), IC asílera (so Breton), which obviously are unrelated. But neither, it seems, has a stem or base that can be employed in an injunctive (imperative)

verb-form meaning *come!* In Lokono, this latter meaning appears to be—or to have been—expressed in a variety of ways; as, apparently, by the first and last words of the above-cited invocation (bokonati, bukonan), by Vazquez de Espinosa's (1629) bakuna and by de Goeje's (1928) bakote, all of which contain the personal prefix bv- *thou or thy*. Moreover, all of them—and especially the last, which de Goeje labels as 'old', in contradistinction to 'modern' mihira bate and, 'when addressing a child of five', kote—look suspiciously like de Goeje's bakunte or bakute, which is, he says, the second person singular imperative of the verb akona *to walk*, but which may well contain Hickerson's 'venitive' suffix, -te. In Island Carib, injunctive *come* was expressed in the women's speech of Breton's day by a locator, whose theme, agá- (higá- in the modern Central American dialect), must be followed by a suffix marking the person of the grammatical subject, as in agábu *viens* (C.A. IC higábu), agámege *venez* (C.A. IC higáugu); this latter inflexion, -mege instead of expected -ho *ye or you*, not being found so far as I know in any other IC form. The themes or stems L -ako-, etc., and IC agá- may or may not be cognates; but the constructions into which they enter are not comparable; and for Lokono there is no indication of any irregular inflexion employed in the second person plural of injunctive *come*. Yet while -mege as a marker of plural number is quite unexplainable in Island Carib, it seems plausible to see in it a cognate of L -make *very*, which is labelled 'intensifying', and to assume that both these suffixes are related to L -makua *every, all, altogether*; the more so since L -be, also labelled 'intensifying', is shown to have a pluralizing function, as in: uakaiabeti, isabeti badia *bad ones and good ones* (of guests; badia *also*), himebe *fishes*, from hime *fish* (*sg*).

In many ways, and particularly in word-order, Lokono and Island Carib have very different structures. So, compare L dA- *my* + -ti *father* kA- *having, with* + ansi *love* + -ka *indicative* + -de *me* = dati kansikade *my father loves me* with IC kA- *having, with* + -ịsị- *dearness* + -ti *aorist verbalizer* + -na *I* l- *his* + -une *purpose* (lúne *for him*) n- *my* + -ugusili *father* = kịsịtina lúne núgusili, with the same meaning as the Lokono sentence, but more literally, *I-have-dearness for-him my-father*. Nevertheless, such structural similarities as I have been able to adduce, few as they are, seem to justify the assumption of an historical relationship between these two languages, that is explainable, when lexical similarities are also taken into account, neither by diffusion nor by creole origin, but only by common descent. This is not the place to estimate the importance of the substantial resemblances between equivalent—or near equivalent—grammatical words and morphemes of Lokono and Island Carib, but the following may serve as a small sample: L to ~ toho *this* (*non-masculine*) : IC túka *this* (*feminine*), L li ~ lihi *this* (*masculine*) : IC líka *this* (*masculine*); L tora *that* (*non-masculine*) : IC túra *that* (*feminine*), L lira *that* (*masculine*) : IC líra *that* (*masculine*); L ia ~ iaha *here* : IC iáka *here*; L iara *there* : IC iára *there*; L -no *plural* (*human*): IC -nụ ~ -iụ ~ -iẹ *plural* (*animate*); L -hu *nominalizing* : IC -ho *nominal absolute*; L -kvta *causative* : IC -gvta *causative*; L -ua *passive or reflexive* : IC -ua *medio-passive*; L -fa *future* and -ba *andative* : IC -ba *imperfective* (*including future-tense function*); L -te *venitive* : IC -te, to which the same label might be given, although it occurs only in pronominal locators such as líte *he or masc.-it coming*, túte *she or fem.-it coming*; iníte (*he*) *is coming*, inúte (*she*) *is coming*.

DOMINICA, B. W. I.

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BALLYHOO

DOUGLAS TAYLOR

About two years ago Geoffrey S. Yates, then Government Archivist in Jamaica, sent me for comment some "rough notes on the two words 'ballahoo' and 'crocro'." The former, which as he says "is of great semantic and etymological interest," he found in records dating from 1750 to the present, variously spelt: ballawho ballahue ballabou ballahoo ballyhoo balahu balajú balarou balaou balao, and with two principal meanings: (i) as the name of a species of fish (not always the same), and (ii) as that of a type of sailing vessel variously designated as "fast, light," or as "lubberly, untrim." The word has also been applied to persons characterized in some places as "quick, lively," or as "weak, ugly" in others; and in St. Lucia the booby (*Sula sula*) is known as the ballahou bird. "In Jamaica the word is ballyhoo, probably by confusion with the Jamaican sense of ballahoo from ballyhoo *loud person, noise, to be noisy* (Louise Bennett, 1943), and is given to two species" (of fish). Since Mr. Yates has not, so far as I know, published anything about it, I hope that I may be excused for offering here my own comments on this and possibly related words.

What may well be the earliest record of this word occurs, as the Island Carib name of a kind of small fish, in Raymond Breton's *Dictionaire Caraïbe-François*, published in 1665 at Auxerre: "bálaou *poisson dit éguille de mer*"; and [bálau] (three syllables) is still its most usual name in Dominica and neighbouring islands today. Now native names of fauna and flora often have, in this language, a transparent descriptive meaning (e.g., maníku *opossum*, from mani- *to be silent or quiet*, means *the quiet one*); and in this same dictionary we find more than a dozen entries containing bala- or bála (both as a stem and as a free form) with such given lexical meanings as: *shake* (*ébranler*), *collapse* (*écrouler*), *lean* (*pencher, appuyer*), *turn over* (*tourner, retourner*), *frisk* (*frétiller*), *roll* (*rouler*), *overturn* (*renverser*). Moreover, this form appears to be complex, for we also find "lábatou *il penche*" and "laba labatou coulíala *canot qui roule, qui est volage*." Clearly, such an epithet as *frisky* may be equally applicable to a small fish and to a light sailing vessel; and have, as applied to the latter, either a favourable or a pejorative nuance.

Another set of words: "balaócounerou *nacelle ou gallere violette*" (*sp. of Medusa—jelly-fish*), "bálaoléchou *plumache ou panache de mer*" (hard, sharp, plume-like organism found in the sea), "balaóboucourou *mansenilier*" (*manchineel*, a small, poisonous, seaside tree), consists of compounds of bálaoua *sea* (as used by the women, the men having balána) together with second members meaning, respectively: *boat or canoe, slash, poison*; while obvious derivatives are: baláorconê *windward coat—*

lit. *sea-in-at* and balaórcouri *inhabitant of the windward coast*—lit. *sea-in-er* (cf., from "acaéra *isle, païs*", kaérabonê *leeward coast*—lit. *country-under-at* and kaérabouri *inhabitant of the leeward coast*—lit. *country-under-er*), "balánagle *Chrestiens,*" with the common instrumental suffix -gle, and therefore translatable as (*thing or being*) *for or of the sea*—unless indeed it had a still more descriptive meaning such as *unstabilizer*!

Can these words for the sea, bálaua and balána, contain the same Island Carib stem bala- as apparently enters into the name of the fish and, later, of a type of sailing vessel?[1] And if so, what is its ancestry? These questions are important because similar words for *sea* are found in languages belonging to different linguistic stocks, as, e.g., Arawakan: parana (Maipure), paranabauk (Wapisiana), bara (Lokono), palaa (Goajiro), palaua (Palicur), baua (Taino), balaua and balana (Island Carib), (cf. also Maipure paraua and Piapoco baraua *Orinoco river*); Cariban: palana (Kalina); Tupian: parana (Tupinambá); and, conceivably, Mayan: paló (Quiche). Several Guaraní tribes living far from the coast are said to employ a similar word for *river*; while both Dudley and Wyatt, in 1595, recorded bara as meaning *water* among a Lokono-speaking tribe in Trinidad; (one thinks also of Kechua para *rain* and Yutaztecan *paa *water*).

There certainly can be no semantic objection; for the basic meaning of Island Carib bala- seems to be *unstable*, a trait eminently characteristic of the sea, rivers and water in general. Moreover, the Maipure differentiation between parana *sea* and paraua *Orinoco river* suggests that these forms were analysable and probably descriptive in that language. As for the suffixes (?), one possibility might be Island Carib -ua *passive*, -(a)na *continuously*. On the other hand it seems unlikely that a borrowed, Arawakan form should have had its greatest success precisely in Tupí-Guaraní territory, as would appear from such modern toponyms as Pará, Paraná, Parahyba, Paraguay, etc.

[1] According to Yates, The Century Dictionary (which I have not seen) mentions and queries a connexion between Carib balahua *the sea* and ballahou, balahu, etc.

DOMINICA, BRITISH WEST INDIES

CRITICAL SURVEY OF STUDIES ON THE LANGUAGES OF SUMATRA. By P. Voorhoeve. Koninklijk Instituut voor Taal-, Land- en Volkenkunde, Bibliographical series 1. S'Gravenhage: Martinus Nijhoff, 1955. 55 pp.

BRUCE BIGGS

This is the first of a series of critical bibliographies of published material on Indonesian languages. It is aimed at drawing attention to material collected in the past and often published in journals with a limited circulation. The hope is expressed that the series will prevent meritorious work from being overlooked simply because of this or through the accident of being written in a language of less than world importance.

The series aims at being exhaustive in listing the purely linguistic materials for each Indonesian area, but only a selective listing of textural and literary material is attempted. The areal classification, which is at least partly geographic rather than linguistic, follows the divisions proposed by Esser in his Atlas van Tropisch Nederland (1938). The relevant section of his map is reproduced at the back of this book.

This first volume deals with the "languages on the island of Sumatra and on the islands to the East and to the West closely related to the main island." Malay proper and Bahasa Indonesia are not included although they are, of course, spoken on Sumatra. However such Malay type languages as Minangkabau and the languages of the islands lying off the north coast of Sumatra are included here.

The introduction discusses the languages

and associated dialects of Achehnese, Gayō, Batak, Minangkabau, Rejang, Lampung, Simalur, Nias, Mentawai, Enggano. In this section there is a critical discussion of the published and some unpublished material, and an evaluation of the worth of various items in terms ranging from "useless" to "meritorious", which justifies the title of the book.

The bibliography proper lists 205 items plus a dozen or so general reference works on Indonesia. The items on several 5th century inscriptions from Bangka and Palembong emphasise the time depth available for historical studies in Indonesia; the paucity of material on such languages as Kerinči and Kubu, and doubt as to their position relative to Malay underline the amount of descriptive and comparative work to be done; and the overwhelming preponderance of Dutch titles in the bibliography points clearly to the source of what has been done.

The list is rather inconvenient to use because the items are not alphabetically listed but are entered according to the order of treatment of sub-areas in the introduction. Subheadings within the bibliography and an alphabetical listing under them would be an improvement.

Interest in this area is developing in the linguistic departments of several American universities, notably Yale, California, and Indiana, where Kerinči and Bangka as well as half a dozen other Indonesian languages are being studied at present. Such interest should welcome this little book and further publications in the same series.

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Research Scope of the Archives of Languages of the World

Department of Anthropology, Indiana University

The general pattern of the Archives is foreshadowed in a series of papers published in IJAL (Conference on Archiving, IJAL 20.83–122, *First and Second Reports on the Archives of Languages of the World*, IJAL 20.241–7 and 21.83–8). This pattern envisages: (1) the collecting, cataloging, indexing and storage of primary records in the form of tape recordings of all the languages of the world available to us; (2) the transcription from tape to paper of a reasonable sample of the tape material collected; (3) the collection of other manuscripts, including texts and dictionaries and grammatical materials, particularly when such manuscripts are concerned with languages for which the Archives has independently made extensive tape collections.

Data thus obtained will serve as research material for structural analysis of individual languages, as well as for comparing (by the comparative method or glottochronology) two or more languages which are related, and also for comparing languages which are geographically related but genetically unrelated (areal linguistics); and also for investigating partial intelligibility when speaker and hearer communicate in different dialects (contiguous or non-contiguous), and in different styles (casual or non-casual); and, finally, for typologizing languages irrespective of their geographic or genetic position. The research scope includes not only formal structure within the synchronic and diachronic frame indicated above, but also such content as is obtainable from extensive texts and dictionaries—dictionaries constructed from the texts or directly elicited according to cultural or selection rubrics as in domain work—thus providing a basis for correlating semantics and syntax (in the broad sense), as well as culture (in the narrow sense) and language.

Microtext Publications

In order to make available certain older, out-of-print works in the field of linguistics, as well as hitherto unpublished manuscripts and notes, a series of publications on

"Microtext" cards has been started. The two works listed below are now available, and other publications are contemplated. Forty-eight pages of material (up to 8½″ x 11″) are reproduced on a 3″ x 5″ card.

1. Lehmann, Walther: Zentral-Amerika. Die Sprachen Zentral-Amerikas in ihren Beziehungen zueinander zowie zu Zud-Amerika und Mexico. 2 vol., 1090 pp. (Hrsg. im auftrage der General-verwaltung der Museen zu Berlin. Berlin, D. Reimer, 1920) 24 microtext cards, $6.00.

2. Welmers, Wm. E.: The Analysis of Two Dialects Known as Jukun, and Notes on the Structure of Kutep. 142 pp. typescript. (Hartford, H. A. Gleason, Jr., 1956) 3 Microtext cards, $.75.

Orders for the above should be directed to: Mrs. Beatrice F. Welmers, 143 Girard Avenue, Hartford 5, Connecticut, U.S.A. Please send remittances with orders, as margins are so low that billing and maintenance of open accounts is not feasible.

Other correspondence should be directed to: H. A. Gleason, Jr., The Hartford Seminary Foundation, 55 Elizabeth Street, Hartford 5, Connecticut, U.S.A.

Recent Publications

General Linguistics

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